

# THE AUTOMOBILE

## Preserving the Inventor's Rights

### Congress Engaged in the Task of Amending the Patent Laws to the End That the Interests of All May Be Subservd

Prominent Patent Attorneys Deplore Delays and Circumlocution, But Insist That the Inventor Shall Be Given the Full Benefit of His Labor

*"Congress shall have the power to promote the progress of science and useful arts by securing for limited times to authors and inventors the exclusive rights to their respective writings and discoveries."—Constitution of the United States, Article I, section VIII, clause 8.*

PENDING before the committees of Congress are seven or more proposed federal statutes, which, if enacted, would amend the present law of patents in a vital manner. Some sort of a change in the laws appears to be probable at this session of Congress and, from the collection of bills before the committees, the chances are something will be found that will be engrafted upon the statutes.

The chief measures pending are the three bills of Representative Thayer, and one each of Representatives Peters and Prouty, Senator Brown and Representative Oldfield.

The first of these, H. R. 11,380, prohibits the imposition of restraint as to the use of any tool, implement or material to be used by the licensee, lessee or vendee in connection with a patented device, where the tool, implement or material is not furnished by the licensor, lessor or vendor.

The second Thayer bill, H. R. 11,381, is designed to prevent restrictions or discriminations in the sale, lease or license of implements, appliances or machinery covered by the patent laws.

The third provides that patents shall be dated from the moment of the application, save where interferences are filed. In such a case the patent is to be dated from the settlement of the interference, provided that it is within 2 years from the filing date. Otherwise 2 years is the limit for the interference to prevent the running of the statute against the patent. Moreover, the patented device must be manufactured in sufficient quantity to satisfy demand within 3 years on pain of annulment of patent.

The Peters bill, H. R. 8,661, prohibits the owner of a patent from making it a condition that the purchaser, lessee or licensee shall not buy machinery, implements or merchandise from others.

The Prouty bill, H. R., 2,345, provides that patents shall bear date not more than 6 months from the time of application and prohibits the fixing of the selling price of the product by the patentee. It provides for the right to royalties.

Senator Brown has a measure providing for codification of the patent laws. This would limit the practitioners in patents on a basis of competency; eliminate the library edition issued by the department; constitute an appellate tribunal; provide for correction of patents by certificates, and install a compulsory license system to prevent the shelving of useful patents and give the

express right to the purchaser of a patented article to use it without restriction.

The Oldfield bill prohibits restrictions on purchasers as to the use of materials with patented devices not sold to the purchasers by the patentee or owner; or to impose conditions to force the purchaser to buy such materials from the patentee contrary to the statutes on interstate trade.

The fundamental patent law in force at the present time contains the following provisions: "Every patent shall contain \* \* \* a grant to the patentee, his heirs or assigns, for the term of 17 years, of the exclusive right to make, use and vend the invention or discovery throughout the United States and the Territories thereof."

For all practical purposes, this is merely a reformulation of statutes which have been in force since the original Patent Act of 1790. That act (1 Statutes at Large 109) defined the right as "the sole and exclusive right and liberty of making, constructing, using and vending to others to be used the said invention or discovery," and practically the only difference is that under the act of 1790 the patent term was 14 years rather than 17 years, as under the existing statute above quoted.

In the following, written especially for THE AUTOMOBILE, the views of three leading patent attorneys are presented.

Mr. Edmonds covers the ground by gisting present practice and reviewing the proposed legislation in forceful and simple technical language.

The interviews with William A. Redding and John R. Taylor were results of conversations covering a broader scope than is embodied in the respective articles.

All three deprecate undue haste in legislation; admit the imperfections of the law and object to the unnecessary expense and delay of present practice.

Mr. Taylor suggests a patents commission to consist of attorneys, manufacturers and inventors to probe the situation.

Mr. Redding pays particular attention to the law's delays, saying that a case that took 5 years could be tried in 60 days, and Judge Hough is quoted as to the uselessness, ponderosity and uncertainty of taking testimony before notarial officers.

The special presentation of these views is as follows:

## Analyzes Patent Law Changes

S. O. Edmonds, New York Patent Expert, Criticises Pending Legislation

Offers Valuable Hints on New Law

THE legislators at Washington who are responsible for many bills now pending before the Patent and Judiciary Committees of the House and Senate would do well to have in mind the fable about the goose that laid the golden eggs. Many of the pending bills, presumably directed against some alleged abuse of the present patent system, are so revolutionary in their character as to endanger the whole fabric of that system as conducted under the wise and salutary laws which from time to time have been placed upon the statute books. The general impression seems unfortunately to prevail, despite the fact that our system has been largely responsible for the creation and wonderful growth of many of the most important industrial enterprises of this country, that our laws are in many respects either unwise or inadequate. The so-called relief measures are, presumably, intended to remedy this condition.

The proposed legislation may, generally speaking, be classified as follows:

First, bills directed to the forfeiture of patents owned or controlled by persons or concerns engaged in business in violation of anti-trust laws.

Second, bills directed to the so-called working (commercial exploitation) of patented apparatus.

Third, bills directed to the abridgment of the exclusive right heretofore vested in patentees, by precluding the sale or licensing of patented apparatus subject to conditions imposed by the patentee and accepted by the vendee or licensee.

This classification is general and does not include legislative effort in other directions, either of minor importance or of such palpable unwisdom as to preclude even the possibility of statutory enactment based thereon. Of the character last named, for example, is a pending bill providing, *inter alia*, that "patents of improvement" shall expire on the date of the expiration of the original patent." Here the legislator's theory apparently was that by means of patents covering improvements upon a previously patented apparatus the monopoly of the prior patentee might be continued beyond the original terms of his patent. To preclude this possibility the draftsman of the bill in question would take away the incentive to improvement upon existing apparatus, by depriving the improver of reward under the patent laws. Accordingly, a patent on a carbon-filament lamp, the filament whereof would give 8 candlepower and burn for 20 consecutive hours, would practically close the field of further endeavor in the incandescent lamp art either by limiting the term, or wholly precluding the grant, of a junior patent to a subsequent improver who, possibly after years of patient toil, succeeded in producing a filament which, with the same consumption of energy, would give 25 candlepower and burn for 200 consecutive hours. The obvious vice of proposed legislation of this character can, I believe, be relied upon to preclude its enactment into law.

First.—The proposed forfeiture of patents owned by persons or concerns engaged in business violative of anti-trust laws is, to my mind, a suggestion not far removed from that last discussed. The federal statute known as the Sherman Law, as well as the anti-trust laws of most of the states, now provide remedies against combinations in restraint of trade, and, as a rule (certainly this is true of the Sherman Law), prescribe the punishment which may be inflicted upon the offender. The suggestion now is that if the offender be found to own or hold any patents, whether the inventions thereof have been used in connection with the trade which has been restrained or not, these shall be forfeited as an additional punishment for his infraction of the law. Curiously enough, under this bill, if the offender be convicted of restraining trade in shoe leather, patents owned by him on an entirely different subject-matter, such as typewriters, become forfeited, the public thenceforth having "the right to the free manufacture and use thereof." It is to be noted in this connection that all anti-trust statutes definitely limit the fine which may be imposed for violation thereof. Under this proposed bill, however, conviction of the offender forfeits his patents, whether he have one or 100, and whether their value be \$1 or \$1,000,000,000. Apart from the unwisdom of such a measure as

a business proposition, it may be noted that it is obviously unconstitutional.

Second.—The "compulsory working" bills are directed to the alleged evil of "shelving patents." It is asserted that the practice prevails among large manufacturers of purchasing patents covering competing apparatus and for their own protection shelving them, without working thereunder during the patent term. Without, as I am informed, reliable data with regard to the wisdom and effect of similar laws in foreign countries, the assertion is made that industrial progress would be advanced by the enactment of laws requiring the manufacture of apparatus under letters patent within a limited period (3 or 4 years) from the patent date.

In point of fact, the need for legislation of this character cannot be supported by the experience of any foreign country having a so-called "working" law. It cannot be shown, and it is not true, that such a law advances industrial development. What it does do is to effectively abridge improvement upon existing apparatus and the grant of patents for the protection of such improvements. Under the present patent laws the reward to the inventor is the right to exclude all others from the manufacture, use or sale of his invention for the period of 17 years. This right to exclude (77 Fed. Rep., 294) is based upon the expectation that "the patentee's interest would induce him to use, or let others use, his invention." But whether a patented invention shall be exploited or not is, under the theory of our patent system, a matter wholly within the province of the patentee to determine. It is he presumably, and not the public at large, who is in position to determine whether a market exists, or can be created, for it, whether under existing conditions the exploitation could be made financially remunerative, etc.

It often happens, even in the case of most ingenious inventions, that an equal or greater degree of ingenuity is required in finding or establishing a demand therefor. In many instances the requirement that a patent be worked within 4 years would, therefore, mean that in practical effect the grant would be for 4 years and not for 17. And when the period during which he may enjoy the exclusive right guaranteed him by the Constitution has been thus abridged, most of the incentive to "promote the progress of science and useful arts" will naturally disappear.

As part of the "compulsory working" proposition, one of the pending bills advances the further suggestion that he grant of a patent should be subject to the power of the Commissioner to require the patentee to license any person or concern applying for such a license, "in such form and upon such terms as to the duration of the license, the amount of the royalty, security for payment and otherwise, as the commissioner sees fit." Here, again, we have the same attack upon the exclusive character of the patent grant provided for by the Constitution. The effort is to transmute that exclusive right into a right which shall be exclusive only so long as the head of one of the governmental bureaus permits. A patentee who, relying upon his right to exclude for a limited period, establishes a business enterprise for the purpose of exploiting his invention, the primary value in which resides in its greater efficiency than similar devices marketed by his competitor, may have his investment destroyed at the prayer of a competitor, who, lacking the initial

tive of the patentee, finds his sales decreasing as a result of the production of the more efficient (but patented) apparatus. To hold that the patentee could be or would be adequately compensated for the license by the amount which the Commissioner determined he should receive therefor, is, of course, absurd.

The particular bill in mind goes even farther. Under its provision the patentee may be required to license a competitor even though "one or more licenses," previously granted, shall be in existence. What this means is that if the patentee be not a manufacturer himself, but for a valuable consideration transfer to one having suitable manufacturing and selling facilities the "exclusive" right to make, use and sell under the patent (the whole value of which right lies in its exclusiveness), he may nevertheless be required to grant another license in aid of a competitor of his license. His practically amounts to the same thing. Not only is it proposed to make the right of the patentee non-exclusive, instead of exclusive, as provided by the Constitution, but it is also proposed to make the right to his licensee similarly non-exclusive, both the patentee and his licensee being deprived of that particular characteristic which has heretofore made the patent grant of value.

Third.—The bills directed to inhibiting the imposition of terms incident to the transfer of patented inventions also strike directly at the constitutional provision that patentees shall have the "exclusive" right to their discoveries. The suggestion of these bills is that, instead of such exclusive right, the patentee shall be granted a right which shall be exclusive except in certain respects. He may, it is true, "shelve" his invention and keep it from the public during the period of his patent monopoly. But if he elect to manufacture the invention he must sell it outright and unconditionally, or not at all. And if he license its use he is debarred from providing against a misuse calculated to throttle the demand for the invention by injuring its reputation for efficiency. In other words, under the existing laws, and recognizing the right of a patentee to do as he pleases with his own, a further and incidental right in him has also been recognized, to determine upon what terms or under what conditions he can, with justice to himself, transfer his patented apparatus to another.

This further and incidental right is of the greatest importance. For example, let it be imagined that the patentee has invented a rifle which can be most efficiently used only if charged with smokeless powder. Naturally, it is to the interest of the public that the rifle shall only be so used. It is also to the interest of the patentee, for only out of the efficiency of the rifle and the appreciation by the public of such efficiency can grow the demand for additional supplies thereof. For his own protection and for that of the public the patentee's right has heretofore been unquestioned, to sell (or license the use of) the patented rifle under condition that it shall be used only with smokeless powder. The pending legislation, should it take the form of a statute, would deprive him of this right. A vendee or licensee could purchase the rifle, ignore the restriction incident to its sale and use it with ordinary powder, which would foul the breach and speedily put it out of commission. The reputation of the rifle would suffer, the demand for it would be injured, and it is not difficult to

## Board of Trade Patent Counsel Charges Delay and Expense

William A. Redding, A. B. of T. Patent Counsel, Wants Patent Evidence Taken

DELAYS and expense are the two great troubles to be found in patent procedure. If objection is raised to granting a patent, it is possible to prevent its issuance for years, no matter how urgently the applicant wishes to have such a result accomplished. If the applicant wishes to delay the issuance, there is only a distant limitation that can stop him.

Take a case in the latter category for example: Suppose that a concern holding a patent or license prepares for manufacturing under it on a large scale and actually commences business involving large amounts of money, only to find that a slumbering patent that has been held up in the patent office by dilatory tactics or otherwise, has been issued, antedating its patent and placing the company in the light of an infringer.

The Prouty bill now before Congress is not subversive in the principle it enunciates. It provides that a patent shall run only 19 years from the date of application except where it is subjected to interferences. Some of the bills now before Congress are very radical, and I believe they have small chance of passage and still less of gaining the signature of President Taft, who by the way, has written some important opinions in patent cases while he was on the Federal bench.

There are some real abuses in the situation, but I doubt if the passage of radical legislation is the proper method of dealing with them. In the first place, a patent conveys a negative right. Under the Constitution it is provided to protect the inventor by forbidding others from using his device for a limited period of time. Monopolies are not popular, but the law of the land decrees that the inventor of a useful article shall have the exclusive right to it for 17 years. This constitutes a monopoly that is provided by the basis of the law itself.

Any law that would take away the protection from an inventor must place a discount on inventive activity.

I would hesitate to say that preliminary procedure in the issuance of every patent could be had in 2 years, but I will say that if the law required such celerity in the patent office, a number of tedious delays could be avoided. It would be no very difficult task to delay the issuance of a patent under the present procedure for an indefinite period.

There are four tribunals through which an application may pass before the patent is issued, without counting proceedings following interference. Such action usually ensues after the facts contained in the patent and the date of application are disclosed.

In the patent office itself the procedure is highly technical and conducive to delay, but under



imagine that the investment in its production would be correspondingly injured or possibly destroyed.

An even better illustration of the vice of legislation of this character is afforded by the mimeograph case (*A. B. Dick Co. vs. Henry*), recently decided by the Supreme Court. There, the effort of the patentee was the usual and proper one, i.e., to create as great a demand as possible for its machines. Such a demand can flow only from realized efficiency and value to the public. The selling plan adopted, therefore, was one involving licensing the use of the rotary mimeograph only with the specially adapted supplies furnished by the patentee. As illustrating the importance of the use of such supplies upon this particular machine, it should be borne in mind that from a single stencil, used thereon, it is possible to produce upwards of 2000 copies. An ill-adapted ink, produced by a competitor without reference to the peculiar requirements of the machine, had been found to contain benzine, which, after 15 or 20 copies had been produced, so injured the waxed stencil as to make additional copies impossible. The license restriction, therefore, was one calculated not only to benefit the public by assuring to it the most efficient use of the patented machine, i.e., the greatest number of prints of high quality with minimum effort and in minimum time, but also to make it possible for the patentee, under its exclusive right to vend the machine in question, to expand its field and increase its sales. Unquestionably, it would have had the right to rent that machine at so much per month or year, just as it might have rented the factory used in its production. In such case, the vendee would be required to account, whether he used the machine or not. Or it might have required a royalty of an almost infinitesimal amount per thousand of copies. Here, the accounting would be vexatious, both to the patentee and the vendee. Or, finally, it might have included the royalty in the original selling price, and as a result the demand would have been abridged and many persons and concerns, of limited means, would have been unable to acquire it. The Dick Company's license plan obviated all these objections. The price at which the machine was sold represented only manufacturing and selling cost. Its manufacturing profit, and also what would otherwise be regarded as the patent royalty, were represented, on the vendee's purchase of supplies, by a few cents additional per pound of ink or per quire of stencil-paper. In other words, by a transaction of most simple character, involving no reference to books or computation, the vendee paid royalty under the patents covering the machine, and since he purchased supplies only for use on the machine he paid that royalty only in proportion to the extent to which he utilized the inventions of which, under the Constitution, the patentee had the monopoly.

It is, to my mind, almost beyond belief either that the equity of such a transaction or the continued freedom of a patentee and his vendee to enter into a contract covering such a transaction can be criticised by an intelligent mind. In point of fact, the suggestion of the proposed legislation that henceforth similar transactions should be inhibited is based much less upon examples such as the two here put, than upon possible abuses of that plan. In other words, the suggestion is that while the plan of selling under license restriction is, in those instances which have come before the court, of undoubted benefit to the public, yet the

public should be deprived of that benefit for fear of abuse of the statutes which have thus far permitted it. To this end many fanciful suggestions have been made, originating in the dissenting opinion of Chief Justice White in the Dick-Henry case; such, for example, as that if under its patent the Dick Company can control the sale of ink to its vendees for use on its patented machines, then the patentee of an engine may control the coal or electrical energy used on that engine, the patentee of a cooking utensil may control the food supply for use therein, etc.

These suggestions seem to utterly ignore a fundamental characteristic of all sales under restrictive conditions. This is, the self-interest of the patentee. That interest impels the adoption of such a plan as will increase the demand for his device by reason of the attractive terms under which the vendee may acquire it. He could find no better way of throttling demand than by imposing conditions which were onerous or even difficult of fulfillment. The real question is, what consideration is the public willing to pay for the purpose of sharing in the patent monopoly.

The restrictive condition under a plan of this sort plays precisely the same part as the price charged by a dry goods house for an article of clothing. The vendor is not compelled to sell and the vendee is not compelled to buy. If the price (or license conditions) be onerous, he may shop elsewhere. The consideration which governs the vendor (or patentee) is that by quoting an attractive price (or reasonable conditions) a sale may be made, where otherwise there would be none.

The further suggestion that a restriction precluding lawful use of a machine save with supplies of the patentee's manufacture vests the latter with a monopoly in the supplies, whereas his patent grants him only a monopoly in the machine on which they may be used, is equally unconvincing, because untrue. In the case of the mimeograph, the only right enjoyed by the patentee to exclude others from manufacture, use and sale referred to the machine which itself was the subject-matter of the patents involved. It claimed no such right with regard to the supplies. All it claimed was the exclusive right to make and sell the particular supplies which, under the license contract, vendees had covenanted to employ when using the patented machine. At all other times and for all other purposes they were free to purchase and use supplies made by whomsoever else they saw fit. So, also, with the cry that under such a plan a monopoly is created in unpatented articles, in derogation of the rights of the public. This is equally without substance. In the case of a peculiar powder for use in a patented rifle, or of peculiar supplies for use on a patented duplicator, the public never had the right to sell either such powder or such supplies for those uses. No injunction restraining a vendor of powder or supplies from making sales to vendees or licensees of rifles or duplicators, for the purpose of procuring them to commit the tort of infringement, could affect the unquestioned right of such a vendor to sell as much powder or as many supplies as he saw fit for any lawful use to which that material might be put.

These seem, it is true, elementary considerations, and yet in the clamor concerning abuse of the patent laws they seem to have been utterly ignored. Admittedly, those laws may be abused, just as other laws may be and have been. The views

## Reduce Time of Patent Trials

### Judge Hough Would Reduce Time Needed in Taking Evidence

#### Would Save Much Time and Expense

UNITED States District Judge Charles M. Hough made the following comment on prolixity of evidence in patent suits in a note delivered in his opinion on a celebrated case:

"It is a duty not to let pass this opportunity of protesting against the methods of taking and printing testimony in Equity, current in this circuit (and probably others), excused if not justified by the rules of the Supreme Court, especially to be found in patent cases, and flagrantly exemplified in this litigation. As long as the bar prefers to adduce evidence by written deposition, rather than *viva voce* before an authoritative judicial officer, I fear that the antiquated rules will remain unchanged, and expensive prolixity remains the best known characteristic of Equity."

"But reforms sometimes begin with the contemplation of horrible examples, and it is therefore noted that the records in these cases, as printed, bound and submitted comprise thirty-six large octavo volumes, of which more than one-half contain only repeated matter; that is, identical depositions with changed captions, and exhibits offered in more than one case."

which I have expressed above are not based upon what may be done in the future, for to my mind, and under existing conditions, this consideration forms no intelligent basis upon which to amend laws which have done so much for the industrial and scientific development of the country.

In my belief, under existing statutes, the federal courts of equity have unquestioned power to relieve against any real "abuse" which may come to light. In such courts the various facts and conditions involved in each alleged "abuse" can be adequately investigated and the rights of the various parties in interest determined. The clamor over the necessity for remedial legislation has, I am glad to observe, directed the attention of thoughtful minds to the dangers inherent in legislation which is ill-considered. There is no more important department of the law than the law of patents. To no statute or series of statutes may be traced such benefits to the public. Our patent system lies at the bottom of, and is responsible for, the production of new discoveries which have made us the envy of all the world.

To secure these laws, formulated under the federal Constitution, have furnished an incentive and guaranteed protection of very definite character. Unquestionably, any essential change in those laws which would injuriously affect that incentive or that protection would defeat the very object of the framers of the Constitution and arrest the industrial development of which this country is, and may well be, proud.

John R. Taylor, member of the firm of Dyer, Dyer & Taylor, patent attorneys, of New York, said:

"In my opinion, hasty action in the matter of amending the system of patent law and procedure would be worse than to allow the system to work itself out. A commission should be appointed by Congress to investigate the whole subject, and I would suggest that such a commission should contain a certain number of patent attorneys, a certain number of manufacturers and some inventors. It really is too important a matter to be put into the hands of any but experts.

"This commission should be empowered to take testimony and to frame tentative legislation covering some of the unquestion-

## —Important Changes Are Needed in Present Patent Law in Open Court—Favors Reduction of Time Allowed for Patent Issuance

favorable circumstances an inventor can secure a patent in about one year after filing application. The other side of the story is to be found in many cases that drag along for years before issue. Under the old law, which allowed 2 years' time to file amendments to the pending patent, the situation was much worse than it is now. In one case I recall, an important patent required something over 16 years before it was issued. During that period an important industry was born and extraordinary vested interests had been created.

Another matter covering phases of the automobile industry took from 6 to 8 years in reaching the stage of issuance. The rights of the patentees date back to the time of filing, but the term of the patent does not begin to run until it is issued.

I am in favor of having the rules of equity amended so that patent trials can be had in court. The practice of interrogating witnesses before notarial officers who are without power to reject any portion of the testimony and whose records are often so voluminous as to preclude the possibility of careful consideration by the court, should be abolished. If the witnesses were heard in open court under the rules of evidence the opportunity for collecting thirty-six octavo volumes of testimony in one case would be obviated.

To show to what lengths such testimony may be dragged out, I could cite the instance where an expert witness was cross-examined for two days as to the places where he attended school.

In the adjudication of a patent it would not be unreasonable to suppose that a complete hearing of the average litigated case could be had in six months if the testimony were taken in court. As an instance of this phase of the matter, I might say that a certain celebrated case that required five years to take the testimony could have been heard in 60 days.

At this session of Congress I expect that a bill will be passed forbidding a patentee to make any contract to limit the use of material in a patented machine.

The legal situation is largely in the hands of three associations: the Patent Law Association of Chicago, Patent Law Association of Washington and the Patents Subdivision of the American Bar Association. With these three organizations the Congressional Committee on Patents is accustomed to confer as to proposed legislation, and a bill must needs have merit to receive indorsement.

In my opinion the creation of a Court of Patent Appeals, with final jurisdiction in patent suits, would aid materially in harmonizing the functions of the nine Circuit Courts of Appeal, and would accelerate action generally.

able abuses that have crept into patent practice in the past.

"In my opinion, the subject should be divided under two heads: First, the procedure before the Patent Office in securing the patent itself, and, second, as to the procedure before the courts.

"At the present stage of practice it is easily possible for a well-versed patent attorney to delay the issuance of a patent for many years. The various steps in securing a patent are as follows: First, the application is filed with the Patent Office. This is assigned to the appropriate section and is given to the primary examiner in charge of that particular work. This requires from 1 to 5 months ordinarily. If his examination shows that the device is patentable, a patent may issue immediately.

"If, on the other hand, the report of the examiner is adverse to the patent, the applicant has 1 year to cure the defective portions of the application. As a general thing, 1 year is too long a time. A month or at most 3 months should be sufficient, and the Commissioner of Patents should be given some discretion in allotting the time so that where some minor change is all that is necessary, the full statutory period may not intervene.

"Many unjust delays occur in the matter of amendments, where the applicant wishes to hold off the day of issuance. Under the statute he can file an amendment to his application that will prevent issuance after one or more claims have been rejected by the examiner. By continuing to amend as often as the amended claims are sent back, it is possible to hold patent until the time is ripe for its issuance.

"If the primary examiner finally rejects a patent application appeal may be taken to the Board of Examiners. In case of adverse action there, another appeal lies to the Commissioner of Patents and after he has ruled upon the matter it may be taken to the Court of Appeals of the District of Columbia. Subsequent to all these steps another appeal may be had to the United States District Court.

"It is conceivable that an application for patent might be held up for 12 years or more, if any good reason for so holding it up should exist.

"All the items I have mentioned are included in ordinary patent procedure, prior to issuance, but in addition, an entirely new field is opened up when interferences are pleaded.

"An interference is where two or more patents covering the same ground come in contact. The litigation of an interference may result in sending the original application back to the primary examiner and if the proposed patent is dissolved another appeal can be taken to the Board of Examiners.

"Assuming that the patent is issued, the course in the courts is notoriously tedious. It is within the province of the government to amend the equity rules so as to achieve greater speed in the adjudication of patents.

"In interferences the practice is to make the last individual or company to enter litigation prove up its claims against the patent in action before the first. Thus if a patent embodying the same facts as one upon which a senior interference has been filed is brought into action as a junior interference, it must stand

## Milwaukee Preparing

### New Mayor Pledges Administration to Hearty Co-Operation in the Project

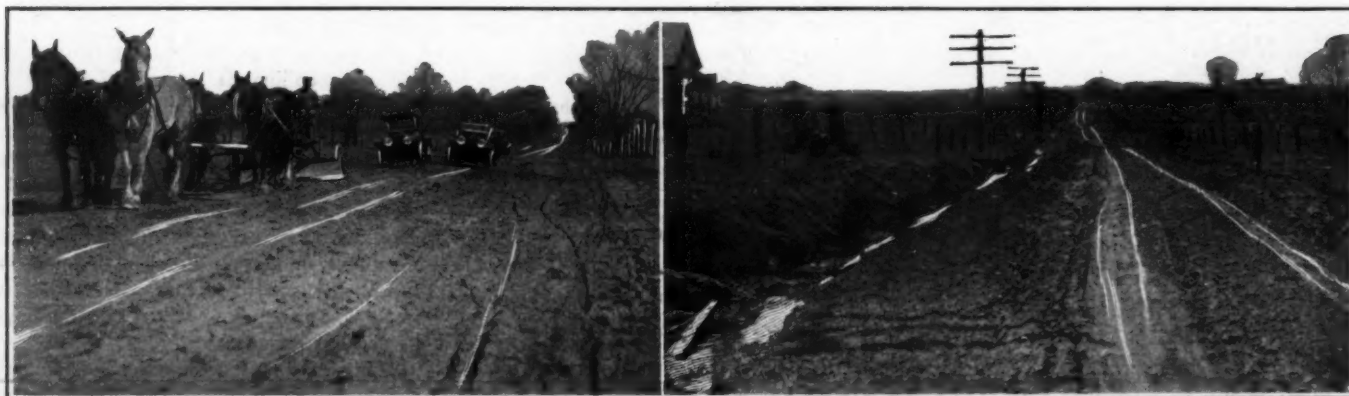


Nearing Brookfield on the Blue Mound course

the brunt of proof along with the expense and possible jeopardy of important business interests based upon manufacture under it.

"I would suggest that sufficient care be used in granting patents so that when one is issued it will raise such a strong presumption of *prima facie* validity that the courts will grant a preliminary injunction under it as a matter of course. There are probably strong arguments to be made against such a presumption, but practice framed on those lines would certainly prove quicker in reaching results.

"Examiners of interferences should be provided for; discretion should be given the Commissioner to limit periods of time in the issuance of patents, which point is now covered by statute or the rules of the Patent Office. Delays in the primary examination are hard to deal with, but more equitable practice would result from the consideration of every application in the light of the decisions and not piecemeal."



Start and finish, of Greenfield course, Beloit road

After turning Whiskey Corners on road to Kelley's Park



## Setting for Big Races

**Six Courses Under Consideration—Date Will Be Between September 15 and October 1**



A winding section of the Janesville plank road

MILWAUKEE, WIS., April 16—The first gun in the campaign to provide for the running of the Vanderbilt and Grand Prix was fired today at a mass-meeting and banquet. The new Mayor, Gerhard Bading, who took the oath of office at noon, was the principal speaker and tendered the utmost co-operation of the new non-socialist administration. Fred J. Wagner was the guest of honor. Following the banquet Wagner and a party of fifty representative business men were taken over the proposed courses.

Although it is probable that one of the courses described in THE AUTOMOBILE of April 4 will be chosen for the running of the two big races, the Milwaukee Automobile Dealers' Association is keeping under consideration a number of other courses in the vicinity of Milwaukee, mainly to guard against prospective hold-ups by farmers and property-holders when it comes to making deals for leases of grandstand and bleacher sites.

Five courses are now in view with a sixth for an emergency. All of the courses listed are excellently located with reference to proximity to the center of population and steam and electric railway facilities. The Waukesha course is the most distant, being from 17 to 20 miles from Milwaukee, but it is being considered because of the splendid inducements held out by the hotel keepers' association in the famous Waukesha county lake region, which is dotted with summer resorts and hotels large and small. Oconomowoc, near Waukesha, is the summer home of hundreds of wealthy Chicagoans and easterners.

In compliance with the wishes of Mr. Vanderbilt and his associates, the Milwaukee cup course will not be longer than 12 miles and no shorter than 8 miles. This is the result of the experiments tried in the past with courses which have run as long as 17 miles. The idea is to heighten and maintain the interest and enthusiasm of spectators by keeping the contesting cars in view of the spectators as frequently as possible. The scheme will also make the whole racing enterprise more compact and eliminate the number of farmers and property owners to be dealt with, as well as render the police service more adequate.

The governor of Wisconsin has stated that he is not empowered to assign state troops for the protection of a private enterprise, but that the commanders of companies anywhere in the state may call upon their commands to go on duty for any reason whatsoever. This insures an adequate policing system, as there are eight companies of militia within the city of Milwaukee and every captain is eager to take the field to police the course.

It is highly probable that Milwaukee will stage the two classics between September 15 and October 1, and not during October as first intimated. While no attempt has yet been made to fix dates, the promoters are giving due regard to other important speed events on the motoring calendar during the fall period. Milwaukee does not wish to interfere with the running of the Fairmount Park on October 5 and will not mix up with the Chicago Motor Club's annual reliability on October 7 to 11. The Elgin stock championships will be decided on August 23 and 24 and it is likely that a month will elapse until the Vanderbilt and Grand Prix are run here.

The fifth noon luncheon of the Milwaukee Automobile Club, which was held Monday at the Hotel Pfister, resolved itself into a booster meeting which was a preliminary to the mass-meeting and banquet on Tuesday. Representatives of the dealers' association, most of the members of whom are members of the M. A. C., were present and made short talks on the project. Bart J. Ruddle, assistant secretary of the M. A. D. A., and manager of the race project, outlined tentative plans on various points. The M. A. C., naturally, is one of the most enthusiastic of all organizations in the promotion of the matter, although according to members of its directorate, the club was somewhat ignored at the start of the negotiations and appeared to be a minus quantity. In fact, it is said, the first tender of participation in the arrangements was the request of the dealers' association to come before the noon luncheon on Monday to place the proposition squarely before the active motorists of the city.



Three-mile straightaway on Janesville plain



Portion of National avenue highway, near Brookfield

## In the Legal Field

### Federal Court Restrains International League From Infringing Horn Patents—Weed Alleges Contempt

#### Cameron Creditors Want More Than 10 Per Cent.—Three More Dyer Suits

**B**UFFALO, N. Y. April 16—Judge Hazel in Federal Court has issued an order allowing the appeal of the Lovell-McConnell Manufacturing Company, Newark, N. J., the Hutchinson Electric Horn Company, Ossining, N. J., and Miller R. Hutchinson, East Orange, N. J., in the action brought against the International Automobile League of Buffalo to restrain the latter concern from infringing on a patented automobile horn made by the plaintiffs.

The complaint against the International Automobile League was filed some years ago. It alleged that the defendant bought patented automobile horns made by the plaintiff and labeled and sold them for less than the price fixed by the holder of the patent.

With each horn were instructions to dealers stating that the horn must be sold in the original package and must be sold for a certain amount. The case will be heard next month in the United States Circuit Court of Appeals, New York City.

#### Alleges Injunction Violation

Contempt proceedings have been commenced against the Atlas Chain Company by the Weed Tire Chain Grip Company, alleging violation of the injunction laid against the Atlas company in selling chains prohibited by the decree.

The writ is returnable April 26 before Judge Lacombe in the United States District Court for the Southern District of New York, and commands the Atlas company to show cause why it should not be adjudged in contempt of court.

#### Interested Judge Refuses to Sit

Somewhat unusual in its character was the recent procedure in the suit of the Carlson Motor and Truck Company against the Maxwell-Briscoe Motor Company, in which infringement of an engine-cover patent was alleged. The case was presented as outlined in a former issue of THE AUTOMOBILE and both sides were preparing to hear the decision of the United States Circuit Court of Appeals when Judge Noyes informed Edmonds & Edmonds and E. W. Marshall, attorneys for the litigants, that he believed he was disqualified from sitting as a member of the bench in the case because he is the owner of an automobile containing a device such as might be held to be infringing the very patent in suit.

The case was then reopened and Judge Ward was substituted for Judge Noyes. The hearing was repeated in substantially the same form as originally and the court took the case under advisement. An opinion is expected in a short time.

#### Object to 10 Per Cent. Settlement

**BEVERLY, MASS.,** April 13—Reporting adversely to the proposed composition of the debts of the Cameron Car Company, of Beverly, Mass., the representative of Herman Steinberg, attorney for many of the creditors of the embarrassed concern, states that the matter of accepting the composition on a basis of 10 per cent. stands as heretofore, and that the matter is now before the United States Court at Salem for confirmation.

He reports that the assets of the company at Beverly amount to \$60,041 and that in addition there is the factory at Attica,

which cost \$25,000, and against which there is no mortgage indebtedness. Since the failure, the receiver has assembled and finished several automobiles, the sale of which netted \$1,200. The mortgages total \$42,000.

There are preferences that may amount to \$8,000, depending on the action of the court. Mr. Steinberg says that he feels confident that a dividend in excess of the 10 per cent. to be had by accepting composition can be obtained by administering the estate as an ordinary bankruptcy.

Objections have been filed on behalf of the Pittsburgh Steel Specialties Company and other creditors and some of the specifications charge various instances of fraud.

#### Warner vs. Stewart & Clark Argued

Presentation of the suit of the Warner Instrument Company against Stewart & Clark for alleged infringement of patents held by the complainant company required 2 days in the United States District Court last week. It was stated that a decision probably will not be handed down until some time in June.

The arguments of both sides were largely centered in outlining the functions of the permanent magnet, which Captain S. E. Darby, counsel for the complainant, characterized as one of the most mysterious forces in nature, giving power and apparently losing little despite the fact that no continuous methods of replacing the used force were known.

#### Three More Dyer Suits Entered

Suit has been entered on behalf of the Enterprize Automobile Company against Ducasse & Company, importers of the Darracq, for alleged infringement of the Dyer transmission and automobile patents. Suits have also been entered against Henry Bishop, owner of an Isotta, and Peter Pavlovich, owner of a Charron.

The suit begun against Samuel W. Bennett, an individual owner, has been settled, following the issuance of a license to him.

The four main suits of the Enterprize Automobile Company, against Winton, Maxwell, Locomobile and Saurer, were due for answer on Monday, but the attorneys on both sides, Dyer, Dyer & Taylor for the complainant and William A. Redding for the defense, entered another stipulation providing for further postponement of the answer day.

All indications now point to sufficient delay in this matter to carry it over until fall.

#### To Sell Carter Corporation Assets

**WASHINGTON, D. C.,** April 13—It is expected the assets of the Carter Motor Car Corporation, which is now going through bankruptcy, will be sold at public auction about April 20. A plan is on foot among the stockholders of the defunct corporation to raise sufficient money to buy in the plant and machinery at Hyattsville, Md.

#### Panhard Refused a New Trial

The United States District Court has denied a motion made on behalf of the Panhard company for a new trial of the suit brought against it by the Interborough News Delivery Company, which resulted in a verdict for the delivery company of about \$2,000.

The future action in the case depends on whether the French concern decides to carry it to the Circuit Court of Appeals.

#### Responsible for Cars of Guests

Under a recent decision handed down in the Municipal Court of Brooklyn, an inn-keeper or hotel man who issues storage checks for automobiles to his patrons and then allows some unauthorized person to get away with an automobile without pro-



ducing the appropriate check, must pay damages to the owner of the abstracted car.

The case in question was that of Dr. A. S. Brinkerhoff, of Brooklyn, whose son and a party of friends drove the doctor's car to Coney Island last summer and checked it in the parking space of Feltman's Café.

When the party wished to return, it was found that the car was missing and the driver was informed that some one else had taken the car.

The next day it was found in the ditch, north of Harlem, stripped of its accessories and everything removable.

Judgment was rendered to the full extent of the court's jurisdiction, \$500. Feltman claimed that the man in charge of the parking space was not his agent.

### W. C. & P. Creditors' Committee

Creditors of Wyckoff, Church & Partridge, Inc., have formed a committee for the purpose of bringing the stockholders and creditors of the embarrassed concern into closer touch so that they may prepare for the resumption of business under reorganization.

The committee chosen at the creditors' meeting consists of the following: H. M. Swetland, chairman; Chester Griswold, secretary; R. R. Moore, president of the Commercial Trust Company; A. G. Bruckman, president of the Livingston Radiator Company; A. Hauschild, Pollok Tire Company, and L. B. Rolston, attorney.

Negotiations looking toward reorganization are under way and it is said that it will take the form of an adjustment of the present corporation rather than a radical change.

### Claims of Züst Creditors Adjusted

The bankruptcy of the Züst Motor Company was finally wound up this week when an order was issued from the United States District Court confirming the composition on a basis of 15 per cent. Distribution to the creditors will be made in the near future. The proved claims amounted to \$37,000 and the amount to be distributed is \$5,350.

Plans for reorganization are under way and some developments are expected by the trade almost immediately.

### Decision in Solid Tire Suit

CHICAGO, April 12—Decision was rendered yesterday in the patent litigation on solid rubber tires as applied to buggies, but which is held not to affect motor tires. Suits were brought against the B. F. Goodrich Company and the Republic Rubber Company for infringement of the Grant patents held by the Consolidated Rubber Tire Company and the Rubber Tire Wheel Company. Judge Kohlsatt, of the United States district court rendered a decision for the defendants based on the failure of the plaintiffs to prove title to the patent and that the acts of the defendants in selling merely the rubber tire portion and not the wheel, which is the substance of the Grant patent, did not constitute an infringement. According to S. E. Hibben, attorney for the Goodrich people, the victory is important in that it was achieved in the face of the fact that the patent had been sustained by the Supreme Court of the United States in a suit against the Diamond company, and because of the large accounting for profits and damages that otherwise would have had to be rendered to the owners of the Grant patent.

### Supply Company in Difficulties

WASHINGTON, D. C., April 13—A petition for the dissolution of the Automobile Owners' Supply Company having been filed, the Equity Court has authorized the receivers to sell the assets of the corporation.

## The Tire Situation

### Many of the Companies Have Followed the Lead of Goodrich and Fisk Firms in Cutting Down Prices

#### Diamond Has Revised List by a Still Further Reduction to Consumers and Dealers

NEARLY everybody in the tire business is getting pretty handy with the axe, according to the sentiments expressed along Gasoline Row in New York, and there exist at present all the necessary elements for a general engagement.

The situation has changed materially since last week in several quarters. The first announcement of the Diamond was that its contribution to the prevailing fashion of chopping prices would be a 10 per cent. cut in consumers' prices. This has been amended to a 15 per cent. slash in the consumers' list and a trifle less than 5 per cent. in the dealers' prices.

Firestone is out with a new list that does not coincide with what was expected of the company and is not identical with the position taken by either of the factions in the industry. Firestone has made sweeping reductions in both the consumers' and the dealers' lists and the level to which prices have been cut is just about midway between the list of the United States Tire and the Fisk Rubber Company's price, which is approximately 10 per cent. below former prices, to consumers at least, and the Goodrich and Diamond level, which is about 15 per cent. below the old list. As an illustration it appears that the Firestone price on the 34 by 4-inch size of standard tire is \$32.85, while Goodrich and Diamond are \$31.60 and United States and Fisk \$33.10.

The Firestone dealers' list is lowered until it is about 5 per cent. over that of the Goodrich company.

The Republic Rubber Company has responded to the reduction in other quarters by announcing a 10 per cent. cut on most of its casings and tubes to consumers. This brings the Republic product to the level of \$34.20 for its 34 by 4-inch tires, with the rest of the list in proportion.

Prices on the smaller sizes—3 and 3 1-2-inch—of Morgan & Wright nobby tread and Republic staggard have been advanced, according to the latest announcement. It is stated that on these small sizes there never has been much margin and that this increase is but a natural one.

The reasons that actuated some of the companies in the course that has been taken are given herewith:

**Diamond**—"The recent price disturbance, started by our competitors, has made necessary a general revision of list prices, owing to the fact that discounts had complicated prevailing prices to such an extent that the dealers were becoming confused thereby. In revising prices we have taken into consideration the fact that the dealer cannot do a sufficient volume of business with too great a discrepancy between prices on Diamond tires and prices generally quoted for tires of other popular brands."

**Goodrich**—"In studying this situation we arrived at the required move, which is not a mere reduction of ordinary nature, but one that would mean a check to the whole downward course of tire prices through the competitive methods of price-cutting."

**Swinehart**—"We can see no particular reason for such a reduction, other than that it is exceptional that any dealers sold at consumers' prices; that consumers' price lists were simply figures from which certain discounts were allowed."

J. C. Matlack, secretary of the Ajax-Grieb Rubber Company, made the following comment: "Prices have been materially cut to the consumer. This change was deemed advisable as we believe that mutual interests can be best served by the establishment of a list price to which the dealer will adhere strictly in making sales to the consumer."

# Aluminum Plants Close

## Strike of Moulders in Eleven Foundries May Interfere With Automobile Factories All Over Country

### United States Motors Centralizing Its Activities in Big Cities—Market Reports

SYRACUSE, N. Y., April 13—Fifty moulders employed by The S. Aluminum Castings Company of this city have struck, the union leading to like procedure in ten other plants of the company and now threatening to tie up automobile factories all over the country. The company makes parts used by nearly all the automobile manufacturers. Announcement received this week of a strike of 300 union employees of the company's three plants in Cleveland occasioned no surprise to the company's union moulders here. The trouble is over the minimum wage agree-

ment, and Matthew McGowan, the union's business agent, said that the ordering of a general strike was the only way they could get it.

After calling out the men here, the men in the two Buffalo plants went out. Strikes followed in the company's two plants at Detroit and one each in New Kensington, Pa., Fairfield, Conn., and Manitowoc, Wis.

President Valentine of The International Moulders' Union came here to assume charge of the strike. Vice-President King, of The Aluminum Castings Company, said in Cleveland this week that the business did not warrant the increase in wages and other concessions demanded by the men.

Officials of the Iron Moulders' Union say that unless the Aluminum Company sends its patterns to other brass foundries in Syracuse, there will be no sympathetic strike here. This sets at rest the fears of local automobile manufacturers.

### U. S. Motors Centralizing Efforts

DETROIT, MICH., April 15—The local branch of the Brush Runabout Company has been moved from its old quarters on Woodward avenue into a vacant store building in the United States Motors Company building, nearer the center of the city. This enables the company to sell its Brush, Courier, Maxwell and Columbia cars from the same building and centralizes all the lines of the group, with the exception of the Stoddard-Dayton which is still handled by the Neumann Lane Company.

The policy of centralization has not been carried as yet to its logical conclusion and there are now two managers for the United States line, Paul McKinney remaining in charge of the Brush division, with Robert K. Davis managing Maxwell and Columbia sales. It is said at the Brush headquarters that the Detroit change is one of several that are being made in cities which have maintained both Brush and United States branches.

Incidental to the appearance of the new Courier cars comes the announcement that the Brush company has discontinued the Liberty-Brush car and will henceforward center its energies on the regular Brush cars and the Courier.

### Market Changes for the Week

Crude rubber has been in the doldrums during the past week. Dealings have been on a small scale and the course of the market has been slowly downward.

The various Para grades are measurably lower, but the plantation grades have shown more obstinacy in yielding to selling pressure. The current level for up-river Para in New York is \$1.16 a pound. Manufacturers are apparently waiting and most of the sales reported are in small lots for current use.

On Tuesday a still further decline was noted in the New York market when the price of up-river touched \$1.14 a pound. The course of prices follows the British fluctuations. Imports for the past week have been less than for the preceding period, but demand has been notably slack.

Copper showed increased strength without a material change in price. Tin advanced sharply at the beginning of the week and closed with an increase of 37 1-2 cents per 100 pounds over the price of a week ago. The price of steel remained without a change throughout the week. The feature of superior interest in these quarters was the monthly statement of the steel manufacturers, which showed a production of 1,400,000 tons of steel ingots for March. On March 30 the unfilled orders amounted to 5,304,841 tons, which is 149,359 tons less than those on hand on the last of February. The range of prices for the week follows:

Material	Wed.	Thurs.	Fri.	Sat.	Mon.	Tues.	Week's Change
Antimony, per lb.	.06½	.06½	.06½	.06½	.06½	.06½	....
Copper, Elec., lb.	.15½	.15 7/10	.15½	.15½	.15 17/20	.15½	+ .00½
Copper, Lake Sup., lb.	.15¾	.15¾	.15¾	.15¾	.15¾	.15¾	+ .00½
Cottonseed Oil, April, bbl.	6.14	6.24	6.42	6.45	6.45	6.46	+ .32
Cyanide potash...	.20	.20	.20	.20	.20	.20	....
Fish Oil, (menhaden) ...	.40	.40	.40	.40	.40	.40	....
Gasoline, auto, 200 gal. @	.17	.17	.17	.17	.17	.17	....
Lard Oil, prime...	.80	.80	.80	.80	.80	.80	....
Lead, per 100 lbs.	4.20	4.25	4.22½	4.22½	4.20	4.20	....
Linseed oil.....	.75	.75	.75	.75	.75	.75	....
Petroleum, bbl., Kansas crude...	.60	.60	.62	.62	.62	.62	+ .02
Petroleum, bbl., Penna. crude...	1.50	1.50	1.50	1.50	1.50	1.50	....
Rape seed oil, refined, gal.	.68	.68	.68	.68	.68	.68	....
Rubber, fine up-river Para...	1.17	1.17	1.16	1.16	1.16	1.14	— .03
Silk, raw nat.....	3.20	3.20	....	....	4.15	4.00	+ 1.20
Silk, raw Jap....	3.80	3.67½	....	....	3.65	3.70	— .10
Tin, per 100 lbs.	43.05	43.25	43.20	43.20	43.37½	43.37½	+ .32½
Bessemer steel, Pittsburgh	20.00	20.00	20.00	20.00	20.00	20.00	....
Open hearth.....	20.00	20.00	20.00	20.00	20.00	20.00	....
Beams & Channels	1.31½	1.31½	1.31½	1.31½	1.31½	1.31½	....
Tire scrap.....	8¼	8¼	8¼	8¼	8¼	8¼	....
Sulphuric, 60 Beaumé, 100 lbs.	.99	.99	.99	.99	.99	.99	....

### Rehabilitating Old Jonz Company

NEW ALBANY, IND., April 15—Auction day, so far as it applies to the American Automobile Manufacturing Company, now in the hands of a receiver in Floyd County, Ind., has been set for April 20. At that time the assets of the company will be offered to bidders. The company was preparing to market the first of its Jonz cars when it was thrown into court and a determined effort is being made on behalf of the stockholders to secure the plant and property. It is the intention of the company to go on with the development of the Jonz line.

In order to achieve this result it is necessary to raise about \$30,000 additional money to be used in the purchase, and the American Automobile Corporation, composed largely of stockholders of the embarrassed company, has passed a resolution to offer 20,000 shares of its stock at \$2.50 per share.

The total indebtedness of the embarrassed concern is about \$84,000. A conditional subscription of 20 per cent. was laid against the old stock, and according to the announcement of D. A. Bob, Jr., president, it has been paid by 500 of the stockholders.

### Attracting Makers to Cincinnati

CINCINNATI, O., April 15—The initial effort to convince dissatisfied automobile manufacturers of other cities seeking a new site that Cincinnati has everything that could be desired by any progressive manufacturer has resulted in President W. E. Hutton, of the Business Men's Club, today appointing a committee to be known as the Automobile Manufacturers' Industrial Committee and the committee is given blanket instructions to seek out the dissatisfied automobile manufacturers everywhere and bring their manufacturing concerns here. The new committee



is composed of B. H. Kroger, multi-millionaire banker, chairman; W. Kehley Schoepfer, street railway magnate; Ed Wilbern, Thomas C. Powell, W. G. Welson, Mayor Henry T. Hunt and Fred Geier. The first missionary trip of the committee will likely to be to Detroit and the Northwest, where it is known two dissatisfied firms are seeking new locations.

### Preparing to Make Steel Q. D. Tires

MILWAUKEE, WIS., April 15—The American Steel Tire Company has been organized at Milwaukee, Wis., with a capital stock of \$50,000 to manufacture an invention of Clifford L. Butler, of Milwaukee. Mr. Butler has been elected president and H. G. Whiteway, of the Chemical Process Company, of Milwaukee, is vice-president. Louis B. Montfort is secretary and treasurer and Samuel W. Heath will be chief engineer. The American steel tire is built for the ordinary quick detachable clincher rim. The steel framework is composed of two layers of steel ribbons, or segments, 1-4 inch wide and 1-32 of an inch thick, strung on two 1-4-inch galvanized-steel cables, these cables forming the bead. The arrangement of the segments is such that the bottom layer covers the opening in the upper, making a tight cylinder.

There is a canvas filler between the inner tube and the steel framework, the whole being covered by a rubber tread with four steel piano wires running longitudinally through it. To hold the tire to shape and distribute the pressure, three lengthwise members of 1-16-inch steel are incorporated in the channel of the framework. The members are electric spot-riveted to the upper layer of crosswise steel segments. It is claimed that the tire is absolutely punctureproof and indestructible, excepting that the rubber tread will wear out in time, but can be renewed as often as necessary. The tire takes the inflation of ordinary rubber tires in various sizes. Arrangements for manufacturing are now being made.

### Would Cure Detroit's Car Famine

DETROIT, MICH., April 15—Manufacturers have been interested in the effort which the commercial bodies of Detroit and Philadelphia are making to foster a trade alliance between these cities, by securing for Detroit a direct line of the Pennsylvania Railroad. The Pennsylvania system's nearest connection at present is at Toledo. It is urged here that an extension of the Pennsylvania to Detroit would go far to obviate a repetition of the car shortage which, to a certain extent, is still in evidence. The Philadelphia business men see in such a connection an immense commercial advantage.

To secure terminal facilities for the Pennsylvania here would be, it is certain, a feat of considerable difficulty. The approaches to Detroit are all well guarded at present, and the New York Central system is in control of practically all the sidings used by the Detroit manufacturers. The attitude of this road has not been made clear as yet, but it is believed that it would give the Pennsylvania no great encouragement, provided it should see fit to make the trial.

In the meantime other cities—Cincinnati in particular—are taking advantage of the situation to press invitations on the Detroit factories, to change the base of their operations. As yet none of the Detroit concerns has seen fit to take advantage of any of the offers.

### Nova Scotia Company Organized

The Nova Scotia Carriage and Motor Car Company, a reincorporation and enlargement of the Nova Scotia Carriage Company, of Amherst, N. S., has been organized with a capitalization of \$2,000,000. The company recently commenced the erection of a new building at Amherst, but until it is finished, which will probably not be before fall, the Kentville factory will be continued. The details of the automobile line have not been announced.

## Electric Self-Starter Test

### Demonstration of New Hartford Device Given to Newspaper Men and United States Motor Officials

#### Company Organized to Make Steel Q. D. Tires—To Stop Detroit Car Famine

AT the headquarters of the United States Motor Company, 3 West Sixty-first street, New York, a demonstration of the new Hartford electric self-starter was given on Tuesday afternoon. The novel point of the self-starter is the 4 1-2-pound fly-wheel in which the energy of the small motor is stored up while the motor is traveling at its normal rate of 7,000 revolutions per minute. The motor is geared down so that the drive shaft of the car turns over 70 times per minute at this motor speed, giving a reduction of 100 to 1, the electric starter motor being geared to the drive-shaft just behind the clutch. The motor develops 1-3 horsepower and is operated by a 16-volt storage battery. At the test in front of the United States Motor Company's building, in which the starter was fitted to a six-cylinder car, the motor drew about 11 amperes at a voltage of 18. In using the starter, the operator touches the contact maker with his foot, setting the starter in motion. He then slowly lets in his clutch, the male member of which is moving at the rate of 70 revolutions per minute, owing to the efforts of the small motor. The engine is thus turned over until it starts. As soon as this occurs, an automatic clutch throws the motor out of engagement with the drive-shaft of the car.

After giving the assembled group of newspaper men and officials of the United States Motor Company a complete demonstration of the starter, the party adjourned to Rector's, where an informal luncheon was held.

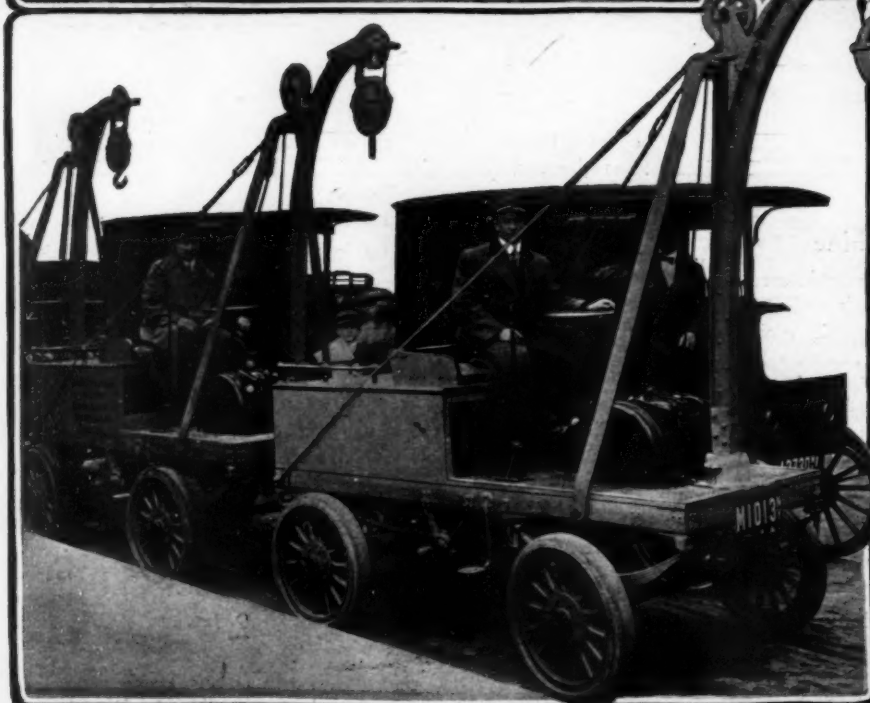
### Automobile Securities Quotations

The following quotations on those automobile securities which were most active during the past week in New York and other commercial centers, indicate the situation on April 17. The list shows the capital, par value of the stock, the rate of dividend and when payable.

Name of company	Capital	Par	Rate	Dividends payable when	Quotations bid asked April 17
Ajax-Grieb, com.....	\$450,000	100	12	M. Jan. 5	125 130
Ajab-Grieb, pfd.....	250,000	100	7	S.A. Mar. 5	95 100
Alum. Cast., pfd.....	100	100	1	.....	100
Am. Loco., com.....	25,000,000	100	7	Q. Jan. 21	140 160
Am. Loco., pfd.....	25,000,000	100	7	Q. Jan. 21	9 10
Chalmers Motor.....	3,000,000	100	5	.....	40 50
Cons. Rub. Tire, com...	4,000,000	100	14	Q. Jan. 20	218 220
Cons. Rub. Tire, pfd....	1,149,500	100	7	Q. Jan. 20	244 246
Diamond Rub.....	10,000,000	100	7	Q. Jan. 15	108 110
Firestone, com.....	3,000,000	100	7	.....	100 101
Firestone, pfd.....	1,000,000	100	1	.....	35 36
Garford Co., pfd.....	15,822,330	100	7	S.A. May 1	75 77 1/2
Gen. Mot., com.....	14,393,000	100	7	Q. Jan.	85 90
Gen. Mot., pfd.....	30,000,000	100	4	Q. Jan.	106 108
B. F. Goodrich, com.....	30,000,000	100	7	Q. Jan.	230 240
B. F. Goodrich, pfd....	15,000,000	100	12	Q. Jan.	102 105
Goodyear, com.....	10,000,000	100	7	.....	104 104
Goodyear, pfd.....	25,000,000	100	1	.....	32 34
Hayes Mfg. Co.....	5,000,000	100	7	Q. Jan.	92 97
Intern'l Mot., com.....	5,000,000	100	7	.....	65
Intern'l Mot., pfd.....	3,600,000	100	7	Q. Jan.	165 170
Lozier Motor Co.....	100	100	various	.....	104 106
Miller Rubber Co.....	100	100	1	Q. Mar. 15	160 170
Packard, pfd.....	5,000,000	100	7	.....	35 40
Peerless Motor.....	1,202,400	100	1	Q. Feb. 1	77 80
Pope Mfg. Co., com.....	3,690,808	100	15	.....	8 9
Pope Mfg. Co., pfd.....	2,192,202	100	6	Q. Feb. 1	22 25
Reo Motor Truck Co.....	10	10	various	.....	85
Reo Motor Car Co.....	2,000,000	100	various	Q. Feb.	104 107
Rubber Goods, com.....	16,941,700	100	7	.....	38 39
Rubber Goods, pfd....	10,351,400	100	7	Q. Mar. 1	97 98
Studebaker Co., com...	30,000,000	100	7	.....	111 113
Studebaker Co., pfd....	13,500,000	100	1	.....	9 10
Swinehart Tire.....	12,193,350	100	1	.....	36 38 1/2
U. S. Motor, com.....	11,491,133	100	1	.....	
U. S. Motor, pfd.....		100	1	.....	

\*No dividend. †Not known.

# New York's Truck Parade

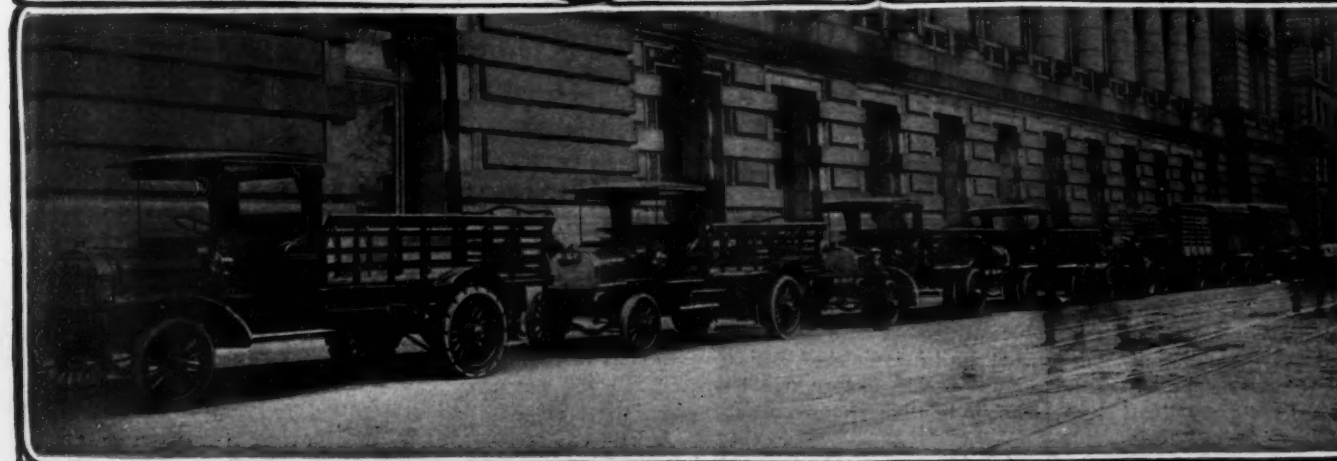


WITH 344 officially participating—the product of fifty-three different factories—the annual parade of commercial vehicles under the auspices of the Motor Truck Club on Saturday last was a spectacular success. In addition to the formally entered cars 100 additional trucks actually took part in the run from the Battery to 125th street.

The reviewing stand at 100th street was passed by something over 500 trucks, the column having been augmented during the course of the parade.

Practically 60 per cent. of the cars in line were entered by private owners. The route selected was 8 miles long and required 2 1-2 hours to cover. The parade averaged 50 minutes in passing

Upper—Lining up at the Battery. Center—General Electric battery crane trucks. Lower—Squad of Mack trucks waiting for start





## 344 Cars of 53 Makes in Line



specific points the line being considerably broken by street car traffic.

Most of the trucks paraded for the sake of the parade, but there were probably forty that took part simply as a portion of the day's work. These cars carried loads of merchandise from their warehouses or stores to depots in Harlem and farther north, and killed two birds with one stone by making the course of the parade part of the route from their warehouses to the distributing stations.

All the way from lower Broadway to Harlem the streets traversed by the column were filled with interested observers. Comment along the way was made on the appearance of the big fleets and individual cars. From the viewpoint of

Upper—Head of parade at Columbus Circle. Center—Peerless trucks passing under L. Lower—Second section on Battery Place



the potential purchaser and from every other angle the parade proved successful.

Almost all of the entries were made within a week because the early interest in the enterprise seemed to cool. But a week ago the club commenced solicitation in earnest and as a result the owners of trucks besieged the committee during the final hours of preparation.

The parade was in charge of E. W. Curtis as grand marshal and was run in three grand divisions, arranged alphabetically according to the trade names of the vehicles.

The trucks on the regular entered list numbered 296 gasoline propelled vehicles and forty-eight electrics, including four cars in which the electric power was developed by gasoline motors.

The Autocar had the largest single fleet in the parade with forty-six cars of the 1 1-2-ton size, but was closely pressed in numbers by the General Vehicle fleet of forty-one cars, which averaged considerably larger than the Autocars. The electric fleet ranged from 1,000-pound wagons to 5-ton trucks and averaged 2.6 tons.

The General Motors Company had twenty gasoline trucks formally entered. They averaged about 1 1-2 tons carrying capacity. The company entered none of its electric models.

The Commer division, which was not formally entered, numbered nine cars and chassis, averaging 4 1-2 tons capacity.

The general average tonnage of the cars was 2.4 per unit. Fully half the trucks were of 3 tons capacity or over. The gross list price of all the cars was \$1,419,000, which takes into account all the trucks that passed the reviewing stand. As the actual count was slightly over 500, the average price figured about \$2,800.

In the line were seventy-two shaft-driven cars; eight worm drives, the remainder being chain-driven. Left-side control was not highly represented as only twenty-seven cars were so equipped. Of the gasoline division, thirty-five per cent. of the cars in line had motors in front, the remainder were placed under the drivers' seats.

#### Fourteen Entries for Sweepstakes

INDIANAPOLIS, IND., April 15—Lee Frayer, who drove in the first 500-mile International Sweepstakes race, will appear in the second annual holding of that classic event next Memorial Day at the Indianapolis Motor Speedway at the wheel of the same Firestone-Columbus. Frayer's car, which finished thirteenth last year, has been overhauled and refitted with new parts. Last year Frayer rode alone, but this year mechanics must sit beside all drivers. Entries close at midnight, May 1.

The other entries to this event are as follows: Two Stutz cars with Gil Anderson and Len Zengle named as drivers; two Nationals with Herr, Wilcox and Merz to drive; two Mercedes to be driven by Ralph DePalma and Spencer Wishart; two Case racing cars with Harvey Herrick and Louis Disbrow at the wheels; a Fiat under the hand of Teddy Tetzlaff; one Lexington driven by Harry Knight; a Cutting with Burman as pilot; a Simplex driven by Bert Dingley, and a Knox owned and driven by Ralph Mulford.

#### Preparing to Welcome A. A. A. Tour

NEW ORLEANS, LA., April 15—Efforts are being made to have several New Orleans cars in the A. A. A. reliability tour. Subscriptions are being taken to provide for the expenses of those representing different organizations of this city. The Cotton Exchange, the Progressive Union and the Board of Trade may enter cars.

Arrangements have been completed for a party of local motorists to meet the members of the tour at Baton Rouge. This party will extend the first formal welcome to the tourists. At other intermediate points between Baton Rouge and this city other cars will join the line and it is expected that practically every available car in the city will go at least a few miles beyond the city limits to meet the guests.

## Belgian Cup Race Rules

### Quite Radical in Some Respects—Minimum Speed Must Be Maintained Throughout Contest

#### Fourteen Entries for the Big Indianapolis Race—Preparing for A. A. A. Tour

A RACE over a new Ardennes Circuit for the cup of the Royal Automobile Club of Belgium is to take place on July 20 and 21, 1912, under a new set of special regulations. The new circuit is about 48 kilometers long and comprises macadamized roads only. The principal features in the revised rules are set forth as follows:

The race is open to vehicles in which the motor has a total cylinder volume of from 2 to 4 1-2 liters. Each vehicle must make a minimum speed in accordance with its cylinder volume, ranging from 55.8 kilometers per hour for 2 liters volume to 72 kilometers for 4 1-2 liters. But the minimum speed is not to be averaged over the whole distance of the race. It must be kept up for every section of the race, and each section is to be 96 kilometers, or twice around the course. A vehicle which is delayed for 15 or 20 minutes at any time will not be able to make up for the delay in 96 miles and, failing to do so, will be eliminated and not permitted to start on the second day. Altogether the vehicles remaining in the race must cover the course twelve times each day, or a total distance of 1,152 kilometers on the two days. The number of sections of 96 kilometers, in each of which every competing vehicle must make good under its speed classification, is consequently 12.

The performances will be classified on a novel plan designed to interest the public at large by bringing out strongly the varying degrees in the regularity and reliability of competing manufactures. Each participating vehicle which is one of a team will be credited with one point for the first circuit completed at the prescribed minimum speed, with 1.1 for the second, 1.3 for the third and so on, and these points will be totalized for each team of cars, and the club's silver cup will go to the team having the largest number of points. If two teams are equal, each will get a gold medal and the cup will be reserved for next year. No manufacturer can enter more than three cars, but the motors need not be of the same cylinder volume in the different cars of the same manufacture. The race is primarily intended for manufacturers, but individual entries will be accepted for single cars. Each individual competitor who finishes the entire racing distance within the rules will receive a medal.

#### St. Louis Working for A. A. A. Tour

ST. LOUIS, Mo., April 15—The St. Louis Automobile Club has proposed a route for this year's A. A. A. tour which will cover the entire Mississippi Valley, starting from Minneapolis and finishing at New Orleans, with St. Louis the central point on the tour.

The club is preparing to furnish mileage and other data and it is hoped in St. Louis that this tour will be selected. It will give a route of about 2,000 miles than can be made in 2 weeks as the roads are in fairly good condition. If this route is chosen the tour may be known as the Mississippi Valley Tour.

PHILADELPHIA, April 13—Entry blanks were issued on Thursday for the fifth annual social and gasoline economy run of the Quaker City Motor Club on April 27. Five prizes have been selected to be competed for, two in the gasoline economy feature and two for participants finishing nearest the secret time schedule, with a special woman's prize in the social contest.



# Enameling of Brass Parts

## Glaring Equipment May Be Transformed By Baking on the Quiet, Serviceable Color Tones Now in Vogue

### Methods of Doing the Work—Gas to Be Preferred to Gasoline as a Heating Medium

THERE appears to be an unusual demand for japanned automobile parts, the bright and shiny brass finish having received an adverse verdict in the court of public opinion. Owners of models 2 or 3 years old with a brass equipment sufficient to make the car look like a circus wagon are resorting to all manner of expedients to reduce these parts to quieter effects. Now it follows that brass, duly lacquered, offers a surface entirely negative, and, if anything, repellent to practically all kinds of ordinary paint brushed on in the ordinary way.

This being the case, the question arises, What is the best method, all things considered, to use in finishing these brass surfaces in paint colors, principally black?

In the first place, an oven must be provided in which to bake the enamel on these small parts, such as lamps, windshield rails, grab handles and other attachments. Probably an oven anywhere from 4 feet to 6 feet square, or in any shape, but containing about the number of square feet which these 4 or 6-foot ones do, will answer the purpose for many of our readers who simply wish to take up the enameling work on a small scale and handle only small parts.

Such an oven, with the latest attachments, to be heated with either gas or gasoline—gas being preferred—will cost probably close to, if not quite, \$50. These ovens, of course, may be made to cost from \$35 to \$500, local conditions and circumstances figuring as factors in the matter. Gas as an oven heating medium is to be preferred for numerous, and substantial, reasons, chief among which is the fact that it is not only a safe medium, but a very quick-heating one, and it is largely used in operating many large ovens.

### Gas Oven Safer Than Gasoline

Gasoline makes a cheap heating agent but, unless handled with exceeding care at all times, a highly dangerous one.

Previous to enameling the brass should be put through a process of preparation that will not only remove all the dirt and grease, but all the old lacquer.

Enamel cannot be safely baked on a surface carrying a glaze of lacquer applied when the brass parts were polished and made ready for service, and since which time it has become almost as hard as the metal itself.

Where the cleaning and enameling is to be done on a considerable scale nitric and sulphuric acid dips may be provided, these being the quickest and most thorough methods of removing the old lacquer, but this system is rather expensive to install and maintain.

As a good and efficient substitute make a dip of water and caustic soda in the proportions of 5 pounds of caustic soda to 20 gallons of water. This caustic soda bath, while removing the lacquer, does not remove the tarnish, so that in case the lacquer is being taken off for the purpose of repolishing and lacquering it is essential that the brass be given a second immersion, this time in a dip of oxalic acid and water, the proportions of which are 1-4 pound of oxalic acid and 20 gallons of water. To make the practice plain, first give the brass a thorough bath in the caustic soda solution, then remove it to the oxalic acid solution, after which remove, wipe dry and polish with some approved metal polish.

In the event of letting the brass parts go in a polished condition they should be given a coat of lacquer as soon as they are cleaned and polished, for upon exposure to the air the brass quickly tarnishes and begins to deteriorate in appearance.

Having stripped the lacquer off by means of the caustic soda solution, it is next a good plan to slightly roughen the surface with No. 1-2 sandpaper, at the conclusion of which work it is ready for the baking enamel.

For lamps, windshields and parts of this class apply as a first coating metal primer or a primer shop-mixed and called by the same name. The bought-ready-to-use metal primer, if secured from a standard color house, is usually reliable, and, on the whole, cheaper than the shop-made material. Make primer consist of equal parts of raw linseed oil and turpentine stained with enough white lead to give the mixture a baking body. Apply to the surface with a camel's hair brush. Heat the oven to 200 degrees F., and bake the primer for 3 hours at this temperature.

If the parts are to be finished in black next apply two coats of black enamel, baking each coat 6 hours at 180 degrees.

All these parts may, of course, be finished in any desired color, the firms making enamels supplying them in a wide variety of colors and shades.

### Colors Need Less Heat Than Black

For larger parts of the car such as hoods, panels, etc., bake the metal primer on the surface for 3 hours at 200 degrees.

Then tint up a baking surface, or shade it out, as the case may be, to act as a ground color, and with the oven at a temperature of 240 degrees bake for 3 hours.

Then with No. 1-2 sandpaper slick the surface down smooth and fine and apply a coat of the desired enamel.

In this connection it is well to understand that colored enamels, other than black, require less heat to bake them than the black. The black should be baked for from 5 to 6 hours at 200 degrees.

Most of the blue enamels bake at 125 degrees, whereas the greens require 140 degrees and even more. Baking white enamels at a temperature higher than 100 or 110 degrees is likely to throw a dirty yellow shade into the white. Gray enamels, such as are used quite extensively at the present time may be baked at from 120 to 140 degrees without affecting the quality of the color. Brown enamels are baked at from 125 to 140 degrees, and reds at from 130 to 175 degrees. Yellows should not be baked at more than 125, and a lesser heat is more to be preferred. If more than one coat of any of the enamels are applied rub the last coat of enamel with pumice stone flour and water and finish, in the case of good work, with two coats of varnish, baking each coat at 150 degrees for 5 hours.

### Squabble Over Profits of Next Salon

Contrary to the custom of previous years the profits of the automobile salon to be held at the end of this year in Paris will be distributed among the exhibitors to the extent of 80 per cent. of the total. The rest is reserved for the benefit of the different associations in charge of the organization, but a strongly-worded resolution aiming to nullify this provision and distribute the entire profits was passed unanimously at a meeting on April 1 of the *Chambre Syndicale* of the automobile and allied industries, of which the Marquis De Dion is chairman, this body being almost constantly in opposition to the faction centered in the Automobile Club de France.—From *L'Auto*, April 2.

**Curing Brittle Cores**—Cores of casehardened steel articles which have been made brittle by exposure to high heat for a long time (8 hours) can be restored by double quenching. The same method improves steel whose strength has suffered through long-time annealing prior to machining. In case of very mild steels the first quenching should be at 850 degrees C., at least, and preferably at 925 to 975 degrees C.; and the second quenching should be at 750 degrees C.—After Pierre Breuil in *Revue Pratique*, March.

# Touring Conditions in Northern Florida

**Sand, Ruts and the Prevalence of a 60-inch Tread Make Automobiling Anything But An Unalloyed Delight—Pine Needles as Road Material—Rainy Weather Improves Roads—Unbridged Streams Numerous**

**F**LORIDA, in its present condition, emphatically is no place to go a-touring, especially if one has an idea that the so-called National Highway will afford the ground work for a pleasure ride. There is one 6-mile stretch of good road between the point in the wilderness where the New York-Jacksonville highway crosses from Georgia into Florida and the center of Jacksonville, the same being practically all within the city limits of Jacksonville.

The road is safe enough all the way, but as it looks just like any old pine forest for 25 miles and is not marked by traffic so that the marks are recognizable, the tourist will run some risk of being lost in the pine-barrens if he can not follow the imaginary line that is supposed to show the road.

Out in the midst of one of these pine thickets it is startling to come face to face with a yellow sign that declares one is upon the national highway. In addition to the 25 miles through the winding wood-paths, there is another 25-mile stretch through a swampy country. In between there is sand of unbelievable depth and so soft that it requires a mixture of 1 ton of pine needles each mile in order to be passable at all. Florida emphatically is not a field for touring at present.

The road builders, if what they built may be termed a road, had a habit of leaving in the ground the stumps of trees cut down to mark the way. There may have been no design about it, but these stumps were frequently found directly in the path of the wheels.

In some ways Florida is wilder and rougher as a touring ground than any state east of the Mississippi river, not excepting

the mountains of Tennessee and the swamps of Alabama and Mississippi. Of course there are many good roads elsewhere in the state, reference being made only to the route across the northern tier of counties from Georgia to Jacksonville. After a spell of dry weather there is only one bit of advice that can be given the prospective tourist and that is—Don't.

Even in such important places as Live Oak and Lake City the roads are miserable and deeply rutted. In fact the ruts of Florida are a menace to travel. For some unexplained reason, horse-drawn wagons are largely of the 60-inch tread type. These make deep ruts in the sand and if one tries to follow them with a 36-inch tread automobile, he invites a large and expansive amount of tire trouble. There is no intrinsic merit in the 60-inch tread, according to experience, and there is no good reason for driving an automobile with a narrow tread in 60-inch ruts. If the operator will run his car so as to straddle one of the ruts without falling into the other he will find that another great automobile traffic problem has been solved as it applies to Florida.

## Pine Needles Used to Neutralize Sand

**S**ome of the means taken to make the roads passable are ingenious. Where there is a long stretch of quick-sand, deep enough and soft enough to swallow an automobile, the road is improved by covering it thickly with a layer of pine needles, or moss or dried vegetation. If this is done and the layer is made uniform in thickness, there is no belt of quick-sand in North Florida that can not be made passable. Without it, there is no known automobile that can negotiate such spots and there are many of them to be found on most of the roads.



The Suwanee river is crossed at several points by iron bridges. These views show the one 13 miles east of the town of Live Oak





Just before the Glidden cars crawled past last fall the residents and road authorities got busy with the pine needles and as result there were no cars permanently stalled.

But in another year or two at the most, these conditions are going to be changed. There are stretches of material length even now that are roughly graded and by next spring it is promised that the whole road will be marked out like a real highway, even if nothing more is done before then. This will have the effect of doing away with all fear of losing one's way in the pine woods and swamps by mistaking a clearing for the regular road and bringing up somewhere on the Indian river.

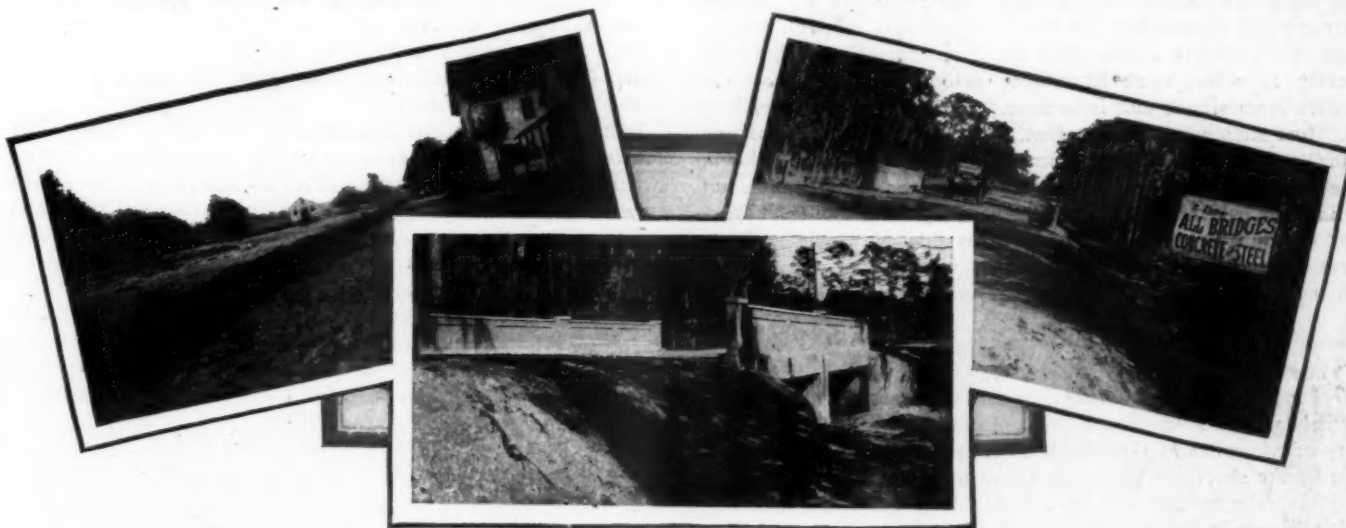
The New York-Jacksonville national highway enters Florida unostentatiously and without warning. There is a shanty on the state line, but it is rather difficult to identify it. Leaving Valdosta, Ga., the tourist should take care to have an extra 5-gallon can of water in the car before attempting the run to Live Oak. If rain has fallen within 24 hours, there will be no serious trouble in getting through, but if it has been dry there will be some work for all hands.

of the Glidden tourists was Captain W. J. Hillman, the turpentine king of the section.

It is assumed that the people of Live Oak keep their cars in their backyards and inspect them occasionally. It is quite certain that they find small use for them outside of the city limits. There was much grading done last fall all along the route, but up to the present moment the pleasures of touring are a minus quantity in North Florida.

### Quicksands, Swamps and Blacksnakes

Leaving Live Oak the route is almost due east, following the railroad as far as Welborn, about 10 miles out. There it turns to the south and winds drunkenly through the loose sand of the great pine forest that covers most of this section. There are several swamps that look much worse than they are with their black water and moccasin snakes, but they are all fordable if due care is used. After over 13 miles of this sort of thing, Lake City is reached and with it a short and agreeable stretch of macadam. This ends abruptly and much too soon and for 11 miles the road traverses conditions that can only



Pine-needles and moss are spread on quicksand. In Florida the new bridges are grandly built. Florida is going at the road problem scientifically—Note this Lake City bridge

The way leads through turpentine forests, the pine trees growing in the loose sand. This character of country continues practically all the way to Jacksonville, the variation lying in the alternation of cypress trees for the pine. There are sixteen unbridged fords on this highway. These run all the way from crossing small streams to fording swamp holes.

### Good Roads Follow the Automobile

It is 41.5 miles from the line to Live Oak, and the only settlement of any importance on the way is Madison. Astonishing as it may sound, Madison is quite an automobile center, the citizens of the place owning probably a score of cars. Just what they do with them is problematical, although the road for 10 miles after leaving Madison is far better than it is anywhere west of Jacksonville. One effect that this ownership of automobiles in Madison has had on the road problem is the definite promise that the road will be clayed and graded north from that place to the Georgia line sometime this Winter.

The Suwanee river of song and story is crossed at Ellaville station, the head of boat navigation. An iron bridge is used to span the brown current. The scenery all through this section is eerie and doleful in the extreme if the skies are clouded, but there is some satisfaction in traveling in the rain, because the chances are much improved for reaching one's objective point.

Live Oak is the largest town between the Georgia line and Jacksonville and its inhabitants own many automobiles. One

be described as fierce. There is a waterhole just east of Lake City that looks like the ultimate finish of any automobile attempting it, but it will be found surprisingly easy to ford. Then the tourist passes Watertown, a small village, and a mile further on comes to a sawmill situated close beside the railroad tracks.

The road is much cut up here and there are certain spots in it that are said to contain an automobile or two deep in their secret recesses. But there is a path through the yard which is covered with sawdust, pine needles and moss in order to prevent untoward happenings and if one sticks closely to the path he will not stick so tightly in the quicksand.

About 11 miles east of Lake City the highway will be built this summer. At present its course is through a thicket skirting the railroad that has rarely been penetrated by automobile so far. Instead, a detour through the woods is the accepted solution of the problem and it is peculiarly trying to man and car. This continues only 2 miles, for which, many thanks.

At Olustree the route picks up the regular road again for about 2 miles. Then follows another detour that makes the first one seem as mild as could be. One reason for its terrors is that it is 4 miles long and as full of masked bumps as the sands of Florida are said to be full of fleas. Following this there is a momentary breathing space when the route strikes the main line again for 1-2 mile. This is succeeded by another detour, south from the railroad, but gratefully short. It returns to the proposed site of the main road at a poverty-



End of the graded road at the west line of Duval County, near Jacksonville

A reward ought to be paid to the person discovering the National Highway here

stricken settlement that has not been dignified with a name so far.

There is an uncouth sort of path from Sanderson to Glen St. Mary and Mac Clenny, passing four fords and six bridged streams and waterholes. At Mac Clenny a long farewell may be said to the proposed main road for from that point to Baldwin, nearly 10 miles, there is another detour that makes all the others seem simple and innocuous. There is no use describing it. Just simply let it go at that, it is not fit for traffic of any kind much less that of automobiles. After passing Baldwin the way is through a semi-tropical swamp for 12 full miles, not 1 inch of which should ever be used by automobiles. There are six mud holes in this stretch, any one of which ought to break a spring or an axle if vicious intention on the part of an inanimate thing could bring about such a result.

#### Road Is Splendid Near Jacksonville

But after that the National Highway is all right. It debouches upon a road that makes one feel as if he might have been translated to his deserved reward. In reality it is no better than any of 350 miles in Georgia, but the terrific racking and straining of the short ride from Live Oak makes it seem better than anything the world holds in the road line, by comparison with what has gone before.

For the first time in 120 miles the engines do not strain. For the first time in hours, the ominous body creaks and squeaks are stilled. For the first time in Florida the tense muscles of drivers relax and their elbows come down from horizontal position level with their cars. And for the first time in the same distance the poor, beaten, bewildered, bruised passengers can sag down into their seats and breathe deeply without running the risk of having their necks broken by sudden jolts or having all the wind in their bodies knocked out.

That road into Jacksonville is a wonder. It

soothes one just to think about it after the trip. It shines by comparison like an arc-light in the bottom of a rain barrel. Rather, there is no such thing as comparison. There is nothing else clear to the Georgia line that merits the name of road.

But to return to that delicious stretch of macadam and brick. It is almost 7 miles long and 30 feet wide and altogether it is about the nicest little piece of roadway in the world, figuratively speaking.

Jacksonville, the oldest big town in the United States, does not look its years. It is growing so fast and making money so swiftly that it has all the earmarks of a metropolis. Florida has only been scratched here and there in an agricultural sense and Jacksonville is the result. The people of that city realize that they have a big future and they are preparing to cash in on that basis. It has a host of automobiles and boasts of one of the finest bits of highway in the country, the road to Pablo Beach. This lies 26 miles to the east and the new road connects the city intimately with the delightful coast resort. The city claims a population of 80,000 and is growing at a rapid rate.

#### Working for Georgia-Florida Road

The road from Georgia is 129.9 miles long. This is composed of 7 1-2 miles of well improved roads; 42 miles of graded highway and the rest is at best a winding trail. For probably 30 miles this trail is unmistakably marked and for 30 miles more is indistinctly marked. But for the remaining 20 miles there is no trace of a road.

Nobody realizes the necessity of a passable highway to Georgia better than the progressive people of Jacksonville and by next fall there will be such a highway. Naturally, it never



Entering Jacksonville over the delightful highway that completes the tour. Jacksonville is pushing out into the wilderness with a good road



can be good or even fair, until it is clayed and graded from end to end and that will require 2 years to accomplish.

If, as a result of such a highway, 1,000 automobiles each month tour to and from Jacksonville, the road would pay for itself in a year, not counting its material advantages to the farmers who have much produce to haul to market all the year around. Such a road would mean stimulated business throughout the northern part of the state and more prosperity and better living conditions wherever it exerted its influence.

Jacksonville, like Atlanta, is well equipped to entertain visitors, but out on the road from Georgia there are no accommodations worth speaking of. The terminal city is modern in its essentials, having been rebuilt from the ground up within 10 years. About 10 years ago the city was destroyed by fire; therefore its buildings and streets are ultra-modern. The percentage of eastern and northern permanent residents in Jacksonville is notable.

### Booming Mobile-New Orleans Road

GULFPORT, MISS., April 9—Information as to New Orleans raising \$1,500 for the preliminary survey of her end of a highway to connect that city with Mobile and passing along the Mississippi coast and through this city, has caused unexpected

## Harking Back a Decade

FROM *The Motor Review*, April 17, 1902:

Cable advices from Nice state that in the Rothschild cup race, the Serpollet 12-horsepower steam machine established a wonderfully fast record for the kilometer. From a flying start the car made the distance in 29 4-5 seconds, which is equal to a rate of 48 seconds for the full mile.

W. K. Vanderbilt, Jr., has just made a new long-distance touring record at high speed. In his new Daimler-Mercedes he traveled from Monte Carlo to Paris, about 643 miles, in 17 hours' actual running time, or a shade less than 38 miles an hour.

Announcement has been made that the Chicago Automobile Club will put on a non-stop run of 100 miles on July 12. R. Harry Croninger has been named chairman of the endurance run committee. The course will be to Waukegan and return.

The Whitney patents covering certain phases of the steam automobile are in litigation. Suit has been filed on behalf of the Whitneys against the Milwaukee Automobile Company for infringement and asking for injunction and an accounting. The Whitney and Stanley patents are said to be controlled by the Locomobile and Mobile companies.

A. L. Moore, of Cleveland, who is preparing to erect an automobile factory to turn out cars of 3 or 4 horsepower selling



Sand trail near Sanderson. This road is much above the average in North Florida

activity here. Such a road would be invaluable to Gulfport, which would be the midway point on the 140-mile stretch connecting the two principal cities of this section. The only difficulties of construction are found on the New Orleans end of the road, where 17 miles of sea marsh will have to be crossed. Local business men and motor car owners are pledging financial support to the road and it is certain that the county officials will subsidize the construction through this county. Similar action is being taken in Pascagoula, Biloxi, Pass Christian, Bay St. Louis and Waveland.

### Touring Miami-to-Quebec Highway

JACKSONVILLE, FLA., April 15—The Board of Trade and Good Roads Association are arranging for a good roads meeting to be held upon the evening of the arrival of the party that is to tour over the Miami-to-Quebec highway under the auspices of the Touring Club of America. The travelers will be given an enthusiastic welcome by the Mayor and officers of the several organizations interested. It is expected that similar plans will be formulated in honor of the tourists in Savannah, Augusta, Raleigh, Richmond, Washington, Baltimore, Plattsburgh, Montreal, Quebec and New York.

at moderate prices, will have H. J. Edwards, one of the pioneer engineers of the industry, as his associate in the enterprise, Mr. Edwards is now in France studying the most advanced methods of construction.

A peculiar phase of the side-wire patent dispute is contained in the suit filed by the Firestone Tire and Rubber Company against Whitman & Barnes, of Akron. The suit alleges that the defendant firm made a certain number of tires on order of the complainant and without authority increased the number of the order. The Firestone company claims that it fears the defendant concern intends to place the additional tires upon the market. The Winton company intends to introduce an astonishing innovation at the factory when it substitutes for its present battery of power generators the engines destined for use in its product. Motors undergoing bench tests and those being tried out in other departments will be belted to the power shafting. When the tests have been completed with one engine or set of engines, others will be substituted.

The constitutionality of motor vehicle legislation is on trial at present before the authorities at Washington. The proposed law is to place a tax on motor vehicles and to allow all other types of vehicles to go untaxed. The National City Automobile Club is in charge of the defense of the automobilists.

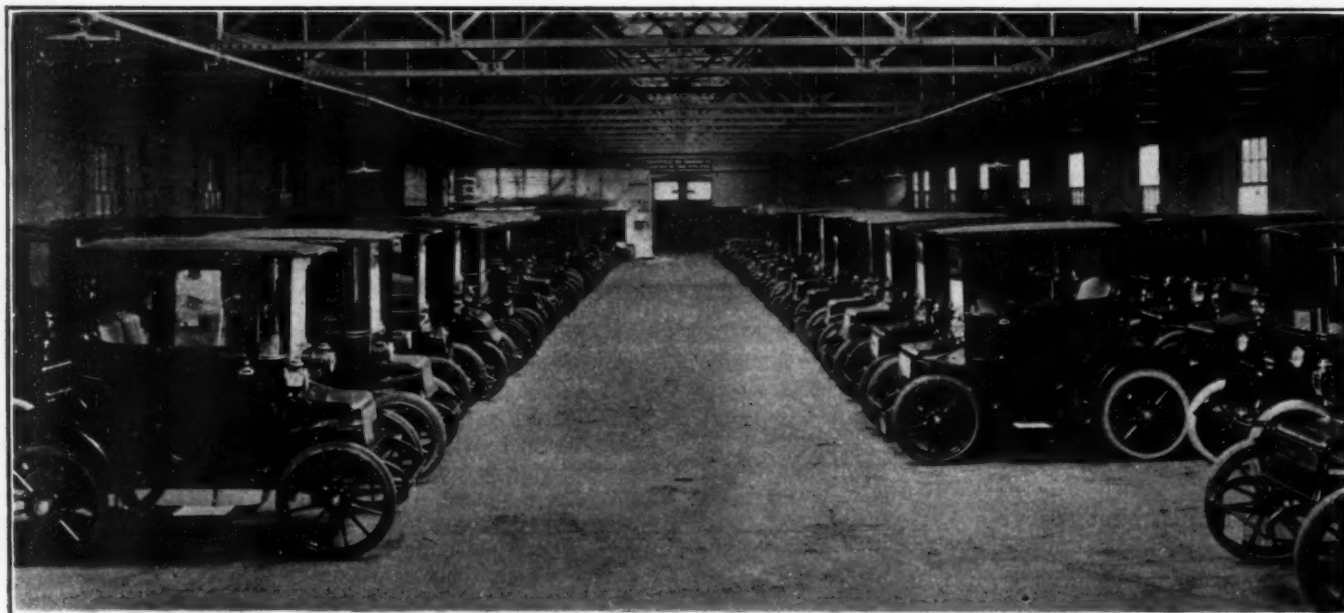


Fig. 1—Inside view of Electric section of the Toledo garage, showing shop in the rear

## Operating a Public Garage Economically

How a Toledo Company, by Care in Planning Its Building and the Adoption of an Adequate 24-Hours-a-Day System, Cares for 150 Automobiles and Incidentally Makes It Pay

Work to be done on <i>Cadillac No. 47</i> car. Belonging to <i>O. K. Hursey</i>	
INSTRUCTIONS FOR REPAIR SHOP.	INSTRUCTIONS FOR PAINT SHOP
Valves ground.	Refinish.
Bearings taken up.	Repainted.
Carbon removed.	Varnished.
Radiator repaired <i>John Kato</i>	Retouched and varnished.
Carburetor adjusted.	Gear painted.
Magneto adjusted.	Paint burned off.
Magneto repaired.	Top refinished. <input checked="" type="checkbox"/>
Clutch refined. <input checked="" type="checkbox"/>	Fenders recovered.
Clutch adjusted.	Fenders patched.
Transmission overhauled.	Fenders refinished.
Rear system taken down.	Monogram on doors.
Differential overhauled.	Miscellaneous
Brakes adjusted.	
Brakes refined.	
Timing gears adjusted.	
Straighten front axle.	
Straighten rear axle.	
Line up wheels. <input checked="" type="checkbox"/>	
Have wheel repaired.	
Straighten frame.	
Complete overhaul.	
Miscellaneous	
Date <i>March 15, 1912.</i> Owner <i>O. K. Hursey</i>	

Fig. 2—Repair card accompanying the car to shop as repair order. The reverse of this form is shown in Fig. 14

THE benefit derived from the use of an efficient system is nowhere more clear and pronounced than in the garage business. There is a great amount of non-productive work to be done in a garage, and the non-productive work is also, in most cases, unprofitable. Still, as the following description shows, a system may be evolved by means of which a small number of men may efficiently handle a large number of cars.

In the case we shall consider below, 150 automobiles are being cared for, and repaired, whenever the necessity arises, by twenty-five men. This fact shows that, if properly conducted, the garage business may be made very profitable.

One of the most important conditions for the development of a successful system is the correct laying out of the garage. The design and construction of the garage must be such as to insure a minimum of waste space and the possibility of moving several cars at one time. A good supply of light is an important factor and a detail which must not be ignored in laying out the garage is the most advantageous position of the gasoline and oil pumps, and wash racks, and, where electrics are to be handled, the arrangement of rectifiers and charging plugs.

### Plenty of Light and Ample Space

THE following description deals with the garage of the Toledo Auto & Garage Company, Toledo, O., and the manner in which it handles the problem of caring for seventy-five gasoline cars and as many electrics. In addition to this work the company takes in automobile repair work, stores cars, charges electrics and deals in automobile supplies.

The layout of this garage is shown in Fig. 3. The garage building is a steel and brick structure covering an area 142 by 220 feet. Its frontage is 142 feet, and the main entrance is 12 feet wide. There is a 14-foot alley at the rear. This feature makes for ample light and for safety in case of a fire.

All along its length the building is divided by a fire-wall into



two sections, one 80 and the other 60 feet wide, serving as garages for gasoline cars and electrics, respectively. Each of these sections is lighted by a longitudinal skylight and a number of windows, and the rear portion of each section is equipped as a repair shop. The offices, chauffeurs' room, etc., are located at the street end of the building. Above the gasoline car repair shop a paint shop is located.

The working force of the establishment comprises twenty-five men; the manager, two office-workers, nine garage hands who work on the cars and clean them during the night, three gasoline car repairmen, a stockroom clerk, two electricians, three painters, a janitor and three drivers.

#### No Posts to Bar Car-Handling

The main door leads from the street into the gasoline car section, Fig. 4. The area of the garage proper is 80 by 190 feet, and the height is 12 feet. The roof construction is supported, without the use of a single post, on steel trusses spaced 8 feet apart. The skylight extending as far back as the gasoline car repair shop is 12 feet wide. Wash racks H, Fig. 3, are located in the rear of the garage; the stockroom and carpenter shop G are situated opposite it. The full length of the fire-wall separating the gasoline car from the electric section is lined with lockers for the chauffeurs. A 12-foot door connects the gasoline car section to its repair shop where work-benches A are arranged along two sides and whence a 12-foot door provides exit to the 18-foot alley behind the building. In one corner of the building a stairway and elevator C are located. The arrangement of the cars in this section is clearly shown in Fig. 4. They are lined up in single, or, if necessary, in double rows on each side, the commercial cars being kept in the rear of the garage. At present, there are sixty-five pleasure cars and ten trucks housed in this section.

Entrance to the electric car section, Fig. 1, is by means of a 14-foot door which pierces the fire-wall and connects the front portions of the two garage sections. The electric department has a garage area of 60 by 190 feet and is connected by a 12-foot door with an electric car repair shop D, 60 feet wide by 30 feet deep. A 10-foot skylight extends all along the roof, from the office to the end of the repair shop; the construction of the roof is the same as in the gasoline car section. There is also a 12-foot door leading from shop D into the 18-foot alley.

The special equipment of this garage, designed to take care of electric cars, comprises five mercury-arc-rectifier panels I and thirteen charging plugs N. All the alternating current is bought from a central station. The rear of the electric section contains

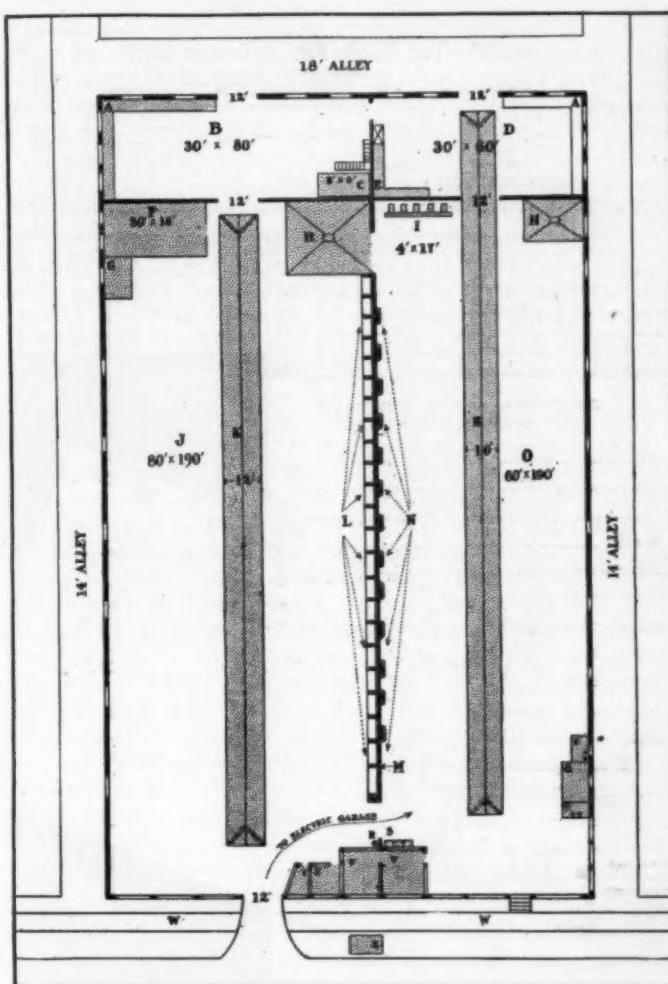


Fig. 3—Floor plan of Toledo garage and layout of various departments

A—Work benches, B—Gasoline section repair shop, C—Elevator, D—Electrics repair shop, E—Shelves, F—Stockroom, G—Carpenter shop, H—Wash racks, I—Rectifier boards, J—Gasoline car garage, K—Skylights, L—Lockers, M—Fire wall, N—Charging plugs, O—Electrics garage, P—Lavatories, Q—Office supplies, R—Gasoline pump, S—Lubricating oil tanks, T—Floorman, U—Chauffeurs' room, V—Offices, W—Sidewalk, X—Gasoline tank.

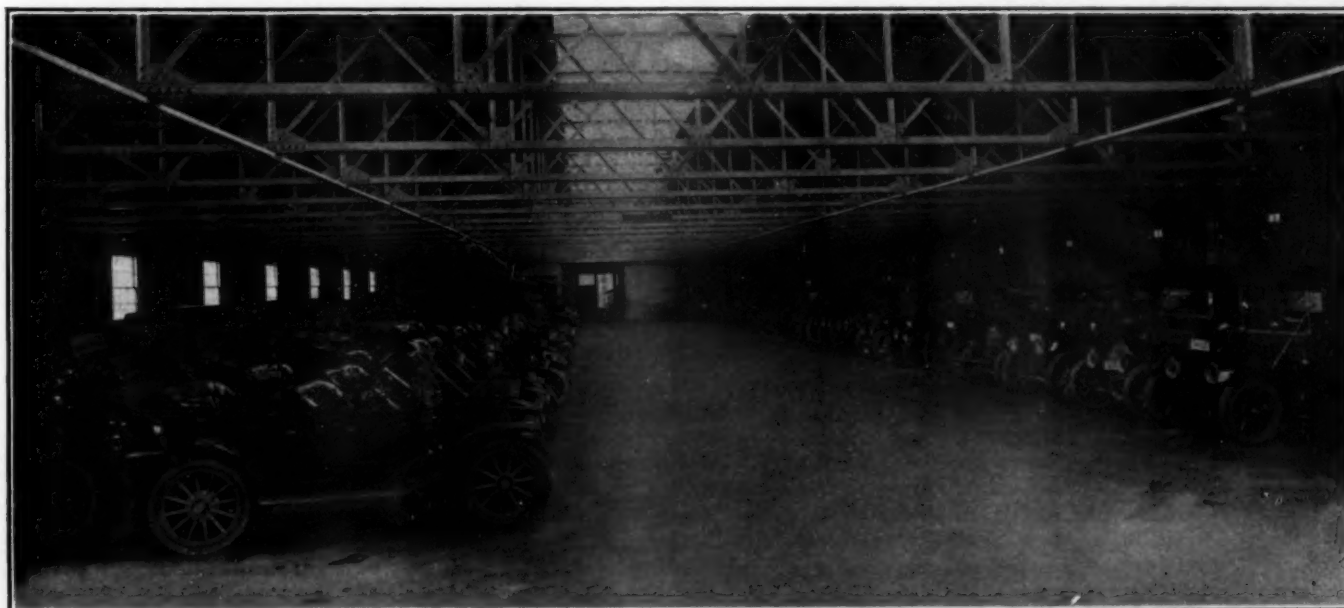


Fig. 4—Interior of the gasoline car section of the Toledo garage, with repair shop in the rear

Fig. 5—Monthly statement, of which a carbon copy is kept. Fig. 6—Battery repair form. Fig. 7—Time distribution card of workmen

wash racks H for the cars. The electric-car repair shop is equipped with work-benches A like the other shop and shelves E for various materials. The electric garage now houses and cares for from seventy-five to eighty cars.

The janitor or floorman who checks the cars in and out is stationed at T near the main entrance. Next to his office is located the chauffeurs' room U, with two offices V situated on its other side. In front of the offices are the lubricating tank S and the gasoline pump R, the latter drawing fuel from a 300-gallon gasoline tank X which lies beneath the sidewalk W. Office supplies are stored at Q and PP are lavatories.

The paint shop above the repair shop B is equal to it in area and receives light from five sides, the walls and ceiling being of glass. This is the only portion of the building located above the ground floor.

### Repairs Methodically Handled

When the owner contracts with the garage company his car is assigned a number by which it is checked in and out when entering and leaving. For this purpose a monthly record chart is used on which are also entered the amounts of gasoline and oil consumed by the car during the month. This is posted near the main entrance and is in the care of the floorman or janitor. This is the normal process of recording the time of arrival and departure of automobiles, when taken out by their owners or chauffeurs; if, however, the former telephones to the garage to have the car driven to his home by one of the garage drivers, the time of receiving the message and the time at which the car leaves the building are noted on the sheet, Fig. 12. This is a daily sheet, and is filed away for future record purposes.

A very elaborate system has been developed by the Toledo

Auto & Garage Company for the handling of repairs. Whenever a customer's automobile is to be repaired or painted, or an electric is to be charged a tag, Fig. 9, is filled out. The same tag is used when any work is ordered to be done on the car of a stranger. The work to be done is outlined on this tag, and the stub is torn off and handed to the owner of the car, while the upper portion of the tag goes to the office, where a repair card, Fig. 2, is filled in with the repairs to be done as enumerated on the tag. This is done by checking the items on the right and filling in the necessary details. The car is then sent to the repair shop with the card, Fig. 2, attached to it, and, as the repairs proceed, each item is checked on the left. If any material has to be drawn from the stockroom, the requisition, Fig. 13, is used, and filled in the manner illustrated. The foreman O.K.'s the

Fig. 8—Tire repair card. Fig. 9—Tag which is filled out when the owner turns the car into the garage with an order for special work

requisition before it is sent into the stockroom and after he has received the material requested, the workman using it signs for it, thus closing the incident so far as the stockroom is concerned. When the repair work is finished a time report on the work done, Fig. 14, is made out. The time report blank is the reverse of Fig. 2.

In case of tire repairs a special card is used in place of the cards Fig. 2 and Fig. 4. The tire repair card, Fig. 8, provides for a classified arrangement of a mass of information pertaining to the tire to be repaired and to the car on which it is used.

As a check on the workmen, a time distribution card, Fig. 7, is used. Each workman receives one card each day, and fills in on it the number and nature of the repair jobs done by him, as well as the time consumed by this work. This card is marked with a timestamp in the morning, at noon, and in the evening, when the man leaves. His time appearing on the time distribution card must naturally check very nearly with the times on the repair cards.

Many repairs done on electric cars are to some extent like gasoline car repairs, and in these cases the same cards are used. But where battery repairs have to be made, a card, Fig. 6, is employed. The condition of cells when turned over to the battery department for repairs is noted on this card. The repair operations done are also mentioned on this card, and, while the time required for the repairs does not appear on it, this item



is brought up by the time distribution card of the workman in charge of the job.

The charging of batteries, while not a repair operation, calls for a system not unlike the one used in the handling of repairs. The battery charging card is seen in Fig. 11. The number of cells and the amount of their travel is noted on the card before charging begins. The process of charging goes on undisturbed until the battery has absorbed a sufficient amount of current, volt and ammeter readings being taken every hour. When the battery is properly charged it is returned to the car and the card, Fig. 11, is signed by the workman. The card is filed under its date, as are all cards except the numbered ones, the latter being filed in series of their numerical order.

The owner of a car receives a bill, Fig. 1, on the first of each month, itemized under the headings gasoline, oil, washing and polishing, and storage, together with a statement of the repairs made and their cost. Repairs are billed to the owner as soon as they are done, ordinary bills being used for this purpose, while the charges for supplies bought from the company are made on a special type of bill, Fig. 10. The contract of the garage with car owners obliges them to pay their monthly statements 10 days after receiving them, so that the company has no trouble in following up overdue charges.

The process of repairing the cars of owners who do not intrust the garage with the general care of their machines is done

And what do the police do in the presence of these enemies who are always ready to fit scientific and industrial progress to their needs? The police do nothing. They take a look at the dead bodies and stand with open mouth. They do not understand it. Is it possible? they seem to say.

The police and progress! What a farce! It is the brigands of Montgeron and of other localities who have taken it upon themselves to demonstrate to doubters what energetic persons can accomplish with an automobile. It seems that the proof has actually gone home. The Department of the Interior has obtained authorization from the legislature to purchase EIGHT vehicles. Did you read it right? EIGHT! We should have had 200. Some other day, some new crimes will give us the remaining 192. Let the good brigands go on finishing their demonstration.

In former days there was the same difficulty about inducing the authorities to make use of the airy bicycle. Today the bicycle police is superannuated. Their reach is too short.

It is in vain that France is the richest country in the world and possesses so much capital that she has to loan it to her enemies if she cannot protect the lives of her citizens by the complete organization of a modern police. The police should keep pace with progress at any cost. Today it is only asked of it that it shall be equipped with a sufficient number of automobiles to keep it informed of what takes place on the roads. Tomorrow, when the aeroplane shall have been admitted as an indispensable tool of trade among bandits, the problem will be aggravated. And the day after, when assassination shall have become a perfected science, when, instead of sending a revolver bullet into the abdomen of his victim, our criminal brother shall despatch from afar, without noise or trace—quite incognito—a few W-rays which make jelly of the brains of the addressee, the police problem will take on an amplitude which it has not yet reached at this moment. Oh, our children will have a lively time!—From *Omnia*, March 30.

Fig. 10—Bills sent to customers for supplies bought, made with a carbon copy. Fig. 11—Card used when the batteries of an electric are charged

in the same way as in the case of a regular customer. Bills and monthly statements of the same type constitute the forms used in charging for the work rendered. The monthly statement is also used for billing the amount due for continued storage of a car. All statements are made with a carbon copy.

### Progressive Criminals Puzzle Police

How to cope with the criminals who make sensational and successful use of automobiles in their predatory and often murderous exploits constitutes a modern problem which is beginning to agitate the minds in Europe. The editor of *Omnia* writes on this subject, in part, as follows:

Brigandage by automobile stupefies us. But what a pudding it is compared with the brigandage by aeroplane which will start tomorrow! What is an automobile which drags itself along at 40 miles per hour, which has burstable tires, which runs up against barred grade crossings, which meets curious and interfering persons, contrasted with an aeroplane which flees at the rate of 4 miles per minute, which will be in Brussels an hour after leaving Versailles without leaving more trace of its passage than an arrow? Oh, good days are coming for brigands!

Fig. 12—Telephone orders for sending a car to its owner are entered here. Fig. 13—Requisition for material. Fig. 14—Jobtime report card

# Digest of the Leading Foreign Journals

## Blown Mineral Oil Found Superior to the Vaunted Cathartic for Motor Bowels —Oildag under French Grilling—Corrugated Bearings for Rotary Valve Shafts—Notable Carbureter for Six-Cylinder Motor

**C**ASTOR Oil for Motors—The makers of Anzani motors, N. and A. Galliot, have investigated the manufacture and properties of castor oil and give an account of their experiments and conclusions, and some of the data, as presented in the following, are of interest to automobilists so long as castor oil is one of the lubricants recommended for the motors of racing cars and for any motor which must be worked for a long time at high speed.

The only place where castor oil has been in use for a long time is tropical East India where it has been employed to lubricate axles of locomotives. The methods used in India for extracting the oil from the castor bean are rudimentary and result in an impure product. Those used in Hull, England, and in Boston are chemical and unless carried to an extreme of refinement, result in an oil containing a considerable percentage of free acids. The ordinary refinement has for its object mainly to remove albuminoid matters. Bleaching of the oil is done by exposing it to sunlight under glass. The French method for extracting the oil operates by mechanical pressure only and produces by far the best article, in three grades. Extraordinary precautions are required for obtaining the best grade of this product, where competing products are in the market.

The specific gravity of the oil is very high, ranging from .966 at 15.5 degrees C. to .909 at 99 degrees C. This high density is only equalled or surpassed in oils which have been thickened by a hot air blast passing through them and, in the case of resin oil. Left to cool, castor oil often precipitates 3 to 4 per cent. of solids. It freezes at 10 to 12 degrees C. below the freezing point of water. It does not evaporate. A sample exposed to the atmosphere for years remains practically unchanged. It does not turn rancid. According to Berthelot it was used in the embalming of the ancient Egyptians. Its viscosity surpasses that of all other oils, save those thickened by air blast, and diminishes but little with a rise of temperature; and this is the most remarkable property of this oil for motor purposes. Chemically, castor oil differs from all other vegetable or animal oils in containing neither palmitine or olein. It is soluble in absolute alcohol, but practically insoluble in gasoline. On the other hand, the castor oil is capable of dissolving small quantities of mineral oil, and the more fluid they are the less it absorbs of them. But the insolubility of castor oil in mineral oil disappears completely when it is mixed with even a very small quantity of another vegetable or animal oil, such as colza or lard oil. An adulteration may thus result in a

serious reversal of the oil's best qualities; in fact, in serious seizures. Castor oil does not attack rubber, but it contains 1 to 2 per cent. of acid fats; sometimes more.

The properties required of a motor oil are (1) high viscosity, (2) complete neutrality and (3) complete combustibility.

On the point of viscosity the castor oil is highly satisfactory, but it is deficient in the two other requirements. Only pure pharmaceutical oil is relatively free from acids, and this is the only kind used, despite its high price, at the great contests. It is quite colorless. A yellowish hue indicates mixture with other grades. A motor lubricated with the second-grade product may operate better than with ordinary oil for a while, but it is probable that the acidity will deteriorate the cylinder and piston bearings more rapidly. Even the highest grade has been known to produce cylinder deposits when passing into the high temperatures of the explosion chamber. And there is no other remedy against this defect than frequent dismounting and cleaning of the motor. When a motor has been operated for many hours with castor oil lubrication and it is desired to start it again, gummed valves render the start laborious; a trouble which cannot be obviated by the use of kerosene or gasoline, because the castor oil deposits are not soluble in kerosene or gasoline. Special precautions must therefore be taken to meet this difficulty. A simple method for testing the purity of castor oil is at the disposal of all. It is known as the Finkener test. Ten cubic centimeters of castor oil is placed in a graduate. Five times as much alcohol, 90 per cent., is added and stirred in. The solution should remain clear and brilliant at 15 to 20 degrees C. An admixture of foreign oils, even if only 5 per cent., riles the solution at this temperature, though not above it.

Summing up, the investigators state that, apart from its use for rotary aviation motors in which the operating conditions are abnormal, they have not found any advantage in castor oil which could not be obtained better by the use of special mineral oils (alluding to those thickened by air blast) equalling the castor oil in viscosity and surpassing it in being free from acids and readily combustible.—From *Omnia*, March 30.

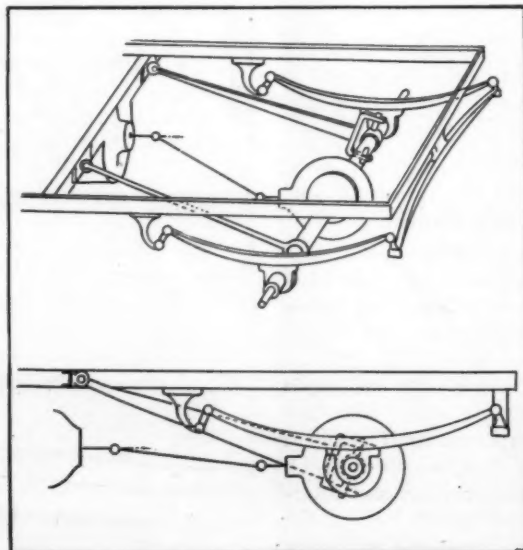


Fig. 1—Diagram of the vehicle suspension in new Delaunay-Belleville models

**Delaunay-Belleville Carbureter**—In the latest models of Delaunay-Belleville cars the characteristic features of design include a carefully studied system of vehicle suspension, involving the use of two lateral torsion rods, also serving as drive-thrust struts, and rear platform springs shackled at both ends, as in-



licated by diagram in Fig. 1, the fitting of a compressed-air self-starter and a new carbureter. The latter is shown in section in Fig. 2. It is in reality two distinct carbureters. The one which goes into action when the throttle is opened is of the ordinary constant-level type, while the one used for the low motor speed is practically a mixing valve. This double carbureter serves a six-cylinder motor with bores of 85 and a stroke of 130 millimeters, the horsepower of which is designated as 15/20 in accordance with the established practice of undervaluation—adopted with a view to easing the taxation and traffic rules to the owner—but is sufficient to produce a speed of 90 kilometers (56 miles) per hour. In the illustration, Fig. 2, G is the jet for high speed which comes into play only when the driver operates the accelerator pedal, thereby drawing the valve stem V to the left and uncovering the opening leading from the tube D to the intake manifold, on the inside of the two-block cylinder casting, by way of the short induction tube M. On its way through the tube D the gasoline vapor receives its admixture of air at E, the air supply being regulated automatically by passing through the air apertures L, these being more or less uncovered according to the movements of spring valve S which is prevented from acting with the rhythmic reciprocations of an ordinary dash pot by means of the piston P, which is forced to move in the liquid contained in cylinder A and therefore acts as a small hydraulic brake. A knurled knob m permits a regulation according to the condition of the atmosphere. When the accelerator pedal is released the air influx through E is immediately stopped, while the narrow passage leading by the mixing valve jet G remains open. This arrangement is said to afford the conditions for a remarkably prompt starting and, generally, an immediate response to all throttle action.—From *La Vie Automobile*, March 23.

**Peculiar Effects from Oildag**—An automobilist in France adopted the practice of mixing Oildag, which is one of the Atcheson deflocculated graphite preparations, with his lubricating oil, following the rules prescribed by the French Oildag company in so doing. Some time later he reported unusual results. The motor functioned better than before, but became considerably hotter than usual, and the cooling water boiled away at a distressing rate. Repeated experiments over long and hilly roads continued to bring the same results, and a return to the lubricating oil he had previously used brought the water consumption and the heat development back to what it had been

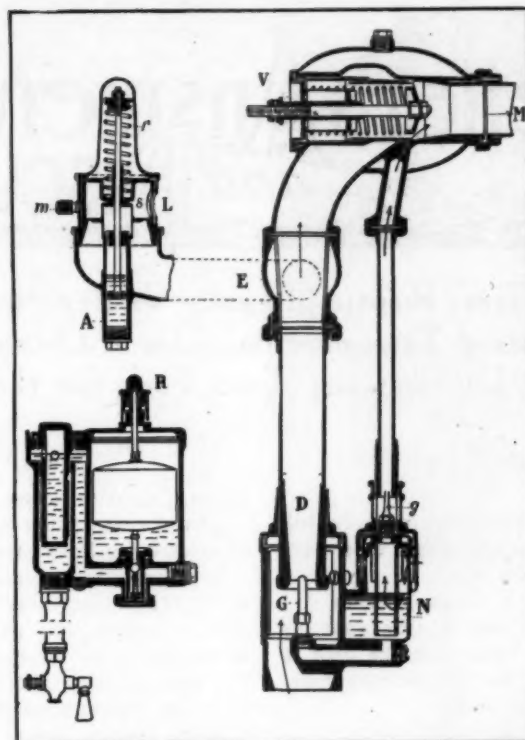


Fig. 2—Sections of the parts of a six-cylinder carbureter used in the same cars

before: The case was drawn to the attention of experts, among them the directors of the French Oildag company, and in the explanation offered it is stated that an improved compression and reduced piston friction are normal results from the admixture of Oildag (with the oils for which such admixture is adapted) and that an increased efficiency of the motor would naturally be expected. On the other hand, increased efficiency is accompanied by increased heat development, and the question arises whether the experimenter traveled at higher speed than had been his wont, so as to use up his extra power, or reduced his gasoline feed and traveled as usual. The case remains practically unexplained.—From *Omnia*, March 23.

[As in most instances of this nature, the data in the case, while more elaborately presented in *Omnia* than here rendered, are not complete. It is not stated, for example, whether the experimenter's car was equipped with a governor. If it was, it is conceivable that the motor was made to work harder than the speed of the car would indicate, and the results obtained would under that supposition be only natural and would call for no other remedy than a new and fuel-saving adjustment of the governor.—Ed.]

**Improvement in Rotary Valve**—Although ample protection against the heat of combustion has been one of the most important features of merit claimed for the rotary distributor in the Henriod valveless motor used for Darracq cars, a recent improvement of this part is aimed to produce additional guarantees against gas leakages along the distributor caused by unequal expansion of distributor and housing due to heat.

The new provision consists, as shown in the illustration, Fig. 3, in forming the entire bearing surface of the part as a succession of shallow grooves and ridges, some of them longitudinal, others transverse and circular, and, further, in cooling the interior bore of this hollow part by means of the intake gases. By affording secure lodgment for a viscous lubricating oil, the grooves D serve to prevent longitudinal leaks, while the grooves C obviate short-circuiting in the delivery of gas to the cylinders as well as in the exhaust, and this object is accomplished without resorting to a very tight fit of the distributor in its water-cooled housing which might lead to seizure. The apertures A are described as passages permitting the intake gases to reach and cool the part from its bore, but the manner in which they accomplish this object is not explained. F is the bearing for the worm controlling the movements of the distributor and E forms an end thrust bearing.—From *Omnia*, March 30.

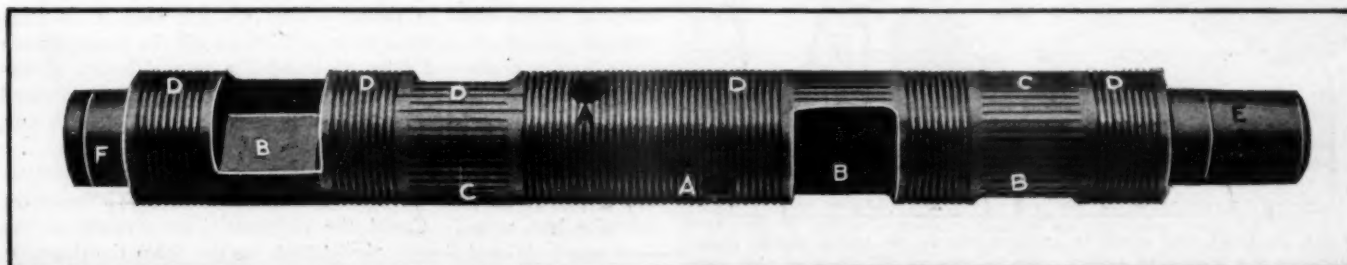


Fig. 3—The improved rotary valve shaft or distributor in valveless motors adopted for Darracq cars

# Letters Answered and Discussed

**Weight Limit of Single Tires; Repair of Leaky Water Pipe; Tightening Leaky Cylinder Plugs; Lubricating Transmission; Use of Oversize Tires; Graphite for Cylinder Lubrication; Two Fuels for the Automobile**

## Weight Limit of Single Tires

EDITOR THE AUTOMOBILE:

What is the limit of the weight of the car, when loaded, at which the makers of dual tires claim that it is more economical to use this style than the single type?

Erie, Pa.

CHAS. EDMONSON.

According to the Michelin company, one of the concerns which specializes in the manufacture of twin tires, the limit is between 2,600 and 3,000 pounds. Above this for ordinary touring work, this concern recommends twin tires.

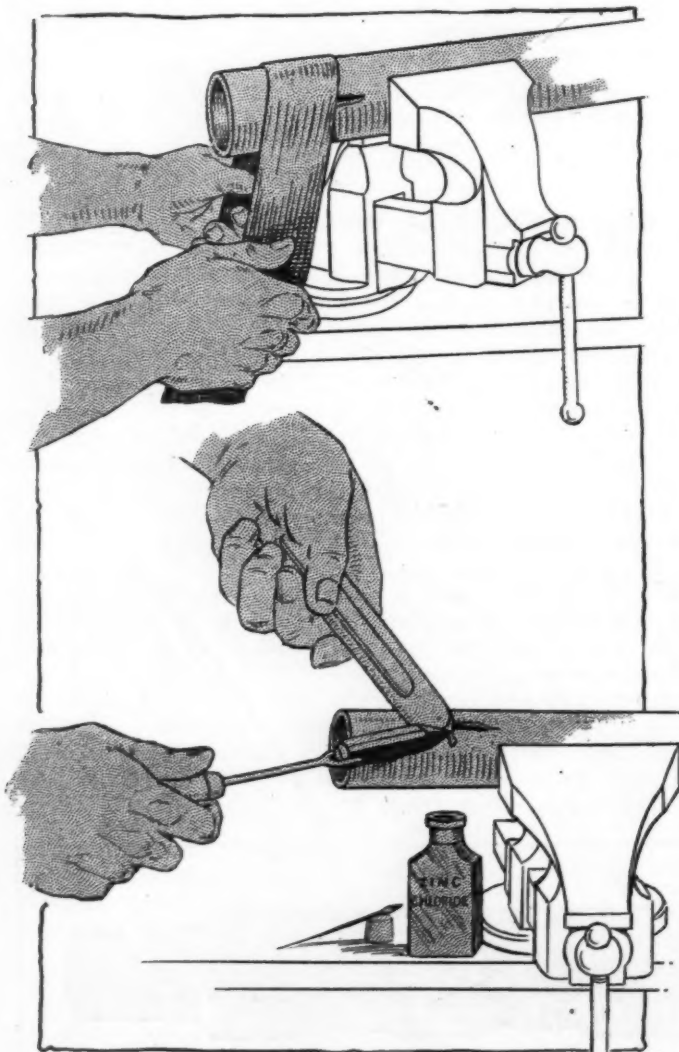


Fig. 1—First two steps in making repair on leaky water pipe. Rubbing the pipe with emery cloth to remove all signs of rust and dirt; tinning the pipe for an inch on either side of the break in the piping preparatory to winding on the wire

## To Repair a Leaky Water Pipe

EDITOR THE AUTOMOBILE:

I have a suggestion to make regarding a very handy method of repairing a leaky pipe.

The pipe to be repaired is cleaned with emery cloth and tinned about 1 inch each way from the leaky place. The end of a piece of copper wire about 3-64-inch thick is soldered in place at one end of the tinned spot and the wire is then wound around the pipe, covering about 2 inches of its length. A thin coat of solder is then applied outside of the wire and the lumps are removed with a file after the solder has cooled off. If the job is done well the pipe will never leak again in the same place.

Muncie, Ind.

A. SCHWARZ.

We have seen this repair used with great success on some bad leaks. It can be made in a half hour by an average mechanic and in less time by an expert who has all the facilities at his disposal. As this is a tip worth knowing, the operation is shown step by step in the accompanying illustrations. In doing the work it must be remembered that the part of the pipe to be tinned must be thoroughly cleaned. Otherwise the tinning will not hold. After having cleaned off the pipe with emery a little zinc chloride is painted on the part to be tinned so that the tinning will hold. Number 17 American or Brown & Sharpe's wire gauge is about the best size to use. The end of the wire which is fastened to the pipe is first flattened out with a few light blows of a hammer. Do not use your best file when filing soldered work as it will spoil it.

## Desires Varied Information

EDITOR THE AUTOMOBILE:

Having recently had the engine of a Model 38 Overland apart for general overhauling, I have been unable to keep the plugs in the head of the cylinders from leaking. That is, when I pour oil around the plugs with the engine running, the oil will bubble, showing a leak. This is not confined to one plug but all of them show the leak to some extent. There are two plugs to each cylinder, one containing the spark-plug and the other the petcock. The leaks of which I speak are not at the threads of the spark-plugs or petcocks, but at the threads of the large plugs into which these screw. I put new gaskets around the plugs but they continued to leak. I then tried coating the gasket with Smooth On, a preparation which is very successfully used in stopping steam leaks in piping. That did not stop it. I then took out the plugs, cleaned them well, filled all the threads with white lead and allowed them to stand for several hours. I replaced them but found that they still leak. The engine runs well and pulls strongly but I do not seem to be able to make it run slowly when the car is standing.

(2) Would it impair the lubrication in a planetary transmission if powdered cork were put into the case to cause the gears to make less noise? Could the differential be treated in the same way? Would the powdered cork we get from the druggist do?

(3) How can you explain the argument concerning the seem-



ingly sensible use of bigger tires? The manufacturers advocate this in the face of the fact that the small wheel cars carry as many passengers as many miles as most of the larger cars.

(4) Would you advise taking out the plugs from the heads of the cylinders and putting in a small quantity of graphite at intervals?

(5) Gasoline seems to be falling off considerably in quality and still going up in price. Would it be practical to have the gasoline tank divided into two compartments with suitable piping, cut-offs, etc., from each to the carbureter? One compartment could be filled with a mixture of, say, half gasoline and half kerosene, the other compartment with pure gasoline. After running a few miles on the gasoline to warm up the engine well, switch over into the other tank compartment of mixed gasoline and kerosene. Would it be necessary to have a different carbureter?

Inman, S. C.

F. G. C.

(1) Remove the plugs from the cylinders and clean the threads thoroughly with gasoline or kerosene, removing all rust and grease. Apply a coat of graphite to the threads, fit a new gasket and tighten up strongly on the plug. A pipe may be slipped over the end of the wrench for the purpose of obtaining extra leverage in tightening up. There is not much danger of stripping the threads here so that you need not be afraid to pull up on the plug very strongly. This is the method used at the Overland service plants in putting these plugs in place and no trouble is experienced with them when fitted in this manner. If this does not prove successful in your case it would be advisable to send to the factory for slightly over-size plugs. This should then be fitted in the manner just described. If you have used a hammer and a punch for removing the plug, it would be better to get a new plug anyway.

(2) Under no circumstances put anything in your gearset but light cylinder oil. If you have a noise in the gearset it is simply a warning to you that you have some worn parts in there which should be removed and replaced at your earliest opportunity.

(3) The argument for bigger tires resolves itself into the study of a tire table. Always make sure that your tires are large enough to stand the maximum weight that the car will ever be compelled to carry. Write to the maker whose tires you are using, asking him for a table of tire sizes for different load weights. You might state the weight of your car when fully loaded. He will be only too happy to advise you as to the proper size tire to use. Then follow his advice.

(4) You probably would not harm your motor by doing this, but the oiling system on your motor will amply lubricate the motor if you keep the oil level in the crankcase at its proper height.

(5) This idea would not be practical because you would have to have either two separate carbureters or a double carbureter having two float-chambers with independent systems of control. Secondly, you would have the trouble that will always result from mixing two substances. When you attempted to renew your fuel at some remote garage, you would have to get a tub or some other vessel and stir up your mixture of kerosene and gasoline. If you are determined to use two grades of fuel it would be better to use a kerosene adapter on your motor, starting on gasoline and then continuing on kerosene. Before fitting one of these, however, have it demonstrated to your perfect satisfaction.

### Credit to Whom It Is Due

In the issue of April 4 of THE AUTOMOBILE, the leading article dealing with the coal problem in New York contained a tabulation showing the percentage of distribution of both anthracite and bituminous coal throughout the boroughs. The figures were obtained from the statistical department of one of the leading coal companies of New York and were published without credit. In fairness to the *Coal Trade Journal* it should be said that the figures in question were originally published in that paper and were used by the company which gave the information to THE AUTOMOBILE.

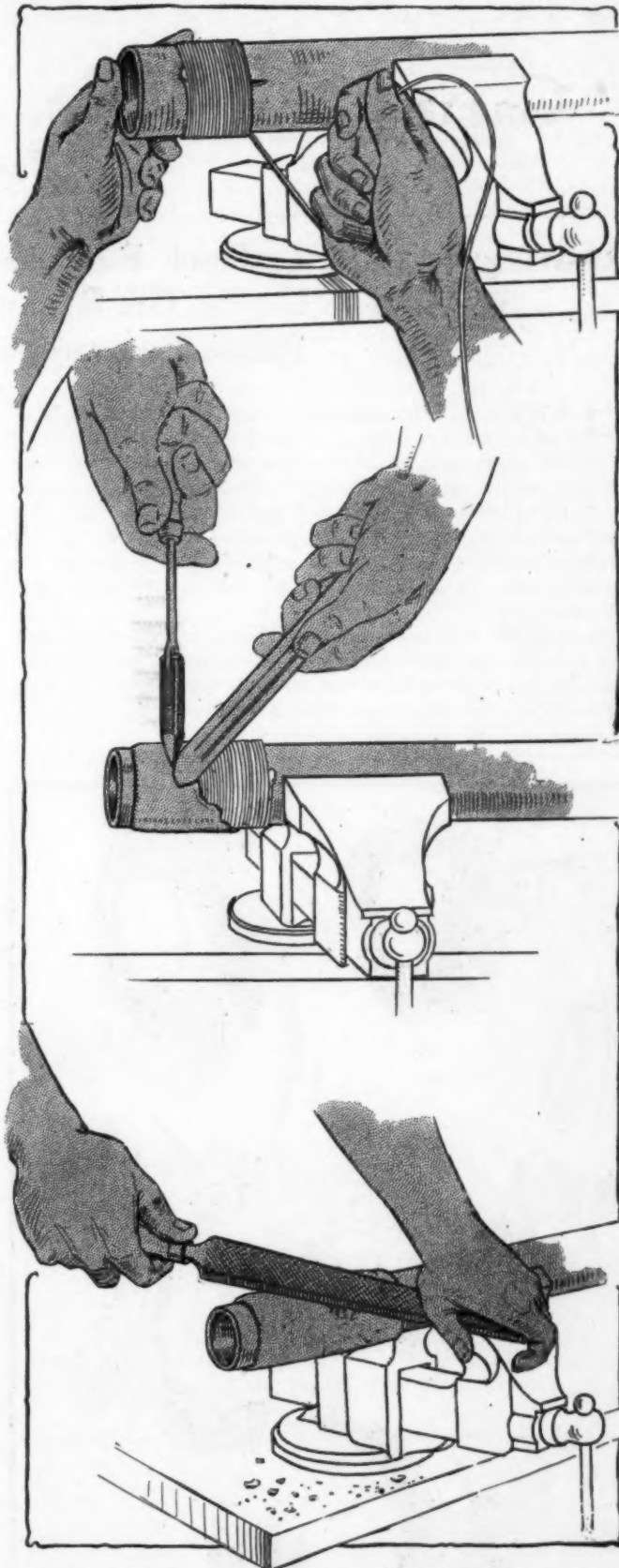


Fig. 2—Winding the tinned part of the pipe with fine wire. The end of the wire is soldered to the pipe and is hammered flat for this purpose. The pipe is then tinned over the part which has been wound with the wire. The final step is to file the soldered part smooth with a fine file. In filing the pipe a better appearance is given to the finished repair if the file strokes are all parallel. The coat of solder which is applied to the pipe need not necessarily be thick. In fact, it is better if it is thinner than that shown in the illustration if the job is to be made as slightly as possible.

# Caring for Tires, Wheels and Rims

## Part I

### Repairing Punctures on Road; Removing Casings; Locating Leaks in Inner Tubes; The Way to Use the Tire Repair Kit; Repairing Larger Leaks With Plastic Preparations; Use of Q. D. Rims

PERHAPS you remember, Mr. Seasoned Motorist, the time when you first had to repair a puncture on the road. It might have been your first day out with your new car and in that case your feelings were all the more poignant as you groped for the repair kit and instruction book. You may well smile at your hesitating procedure as compared to the businesslike and efficient manner in which you now meet the same occurrence after having learned your lesson in the school of experience.

According to the best figures obtainable, there were 194,500 new automobilists in the United States during the year of 1911. Each of these had to learn his lesson as will the 200,000 more who will join the ranks in 1912, and it is especially for the benefit of these that the following instruction is given.

Much stereotyped advice has been given the car owner as to the best way to minimize his tire trouble and expense, but very little has been said as to what he should do when he finds himself face to face with the trouble and no assistance from a corps of experts and technical advisers at hand. There are several varieties of blow-outs, each seeming to claim distinction as the meanest and most distressing of all for the novice to handle. In the first place, the blow-out, contrary to general opinion, is not always accompanied by a sharp explosion. It is only when the inner tube gets outside the casing that a detonation of this sort occurs. The noise is produced when the pressure in the tube drops almost instantaneously to atmospheric. When the blow-out takes place within the casing it takes the air a considerable space of time to work its way out around the bead, and, although the puncture in the tube may be large, the pressure does not drop so rapidly. When this happens the driver will not detect the leak from the noise and in many instances he will have gone some distance before the jar caused by passing over some obstruction will make him aware that the tire is flat.

Demountable rims are now a part of the equipment on most of the standard makes of cars. Repairing a puncture on a short run has almost ceased to be a source of annoyance. But when the second or third puncture occurs it is generally necessary for a roadside repair to be made. It saves a great deal of trouble in jacking to select as hard and level a spot as possible on which to stop the car. The jack is secured and placed under the axle near the wheel which has the flat tire and the latter is lifted from the ground just far enough to allow the wheel to be freely turned. If quick detachable demountable rims are used, the method of procedure from this point on will be different than with the ordinary clincher type. The latter will be considered first and then some of the well-known types of demountable rim will be taken up as examples of how these should be treated.

#### Repairing the Clincher Tire

It is not necessary to entirely remove the casing to take out the inner tube unless the puncture is a large one. If the casing is badly cut it will have to be entirely removed. This is readily done after thoroughly deflating the tube by removing the valve plunger. The cap of the valve generally has a small notch that fits over the plunger of the tire valve. This is used as a screw-driver and the plunger can be readily screwed out in a few seconds. The nut and washer are then removed from the valve and put somewhere where they can be readily found again. Do not mislay these parts or place them in a pile of tools or parts where they may become lost. The amateur has been known to put them in his pocket and then, when he was ready to replace them, to start a search in the most inconceivable places and to accuse innocent bystanders of causing their disappearance. The lug nuts are then loosened until barely retained and the lugs are moved up and down to see if they are thoroughly loose. Push against the tire so as to force it back from the clincher ring and insert the flat tire iron

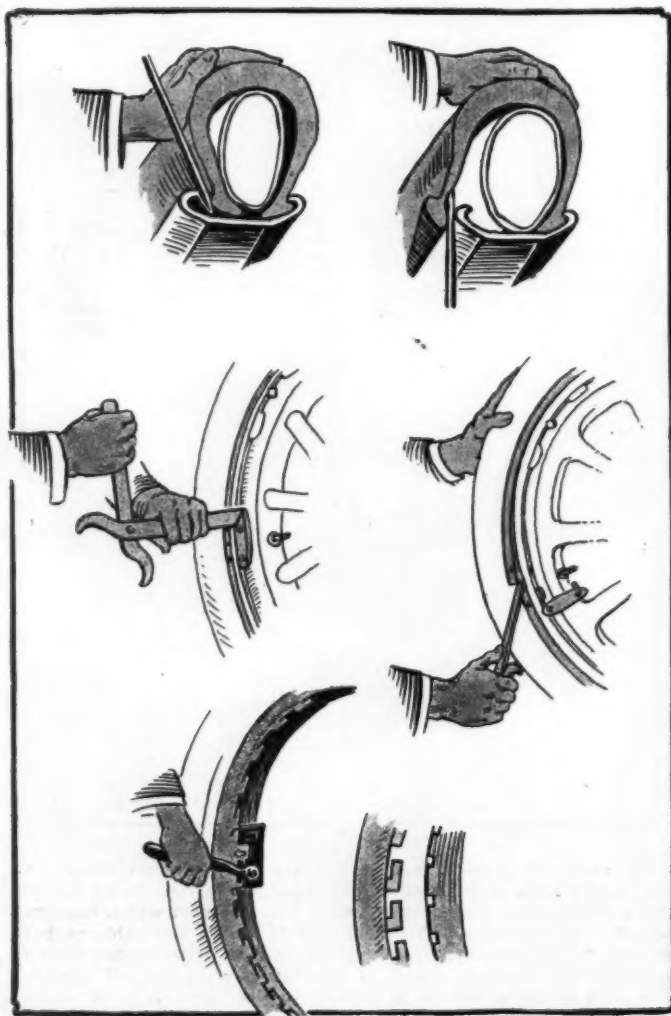


Fig. 1—Detaching a clincher tire, a Booth rim and a Standard rim



under the outside bead. Using the clincher ring as a fulcrum, push the iron down, thus prying the bead out of the ring, as shown in Fig. 1. If two irons are employed, the second is inserted beneath the bead a short distance from the first and then, by moving them around the circumference of the wheel in opposite directions, the outer bead is readily stripped from the rim. Only one precaution must be observed in putting the irons under the casing, and that is not to cut the inner tube with the end of the tool. It is impossible to look within the casing and see that the iron is not touching the inner tube, but by carefully pushing the tool beneath the casing there will not be much danger of hurting the inner tube.

The lugs can now be readily freed from the tire into which they have been pushed up as the casing was being removed from the rim. When this is done remove the retaining nut and washer from the valve stem and place them with the other detached parts. Then push the valve stem through the rim and pull the tire out from the rim, prying the inner bead over the outer clincher ring wherever it is necessary. The tire will then be completely free from the wheel and the inner tube may be removed from the casing. Start at the valve and pull the inner tube gently from the casing. If it sticks, free it gently by inserting the hand between it and the casing. Do not jerk the tube, as it is composed of pure rubber and cannot stand that sort of treatment.

### Mending the Punctured Tube

The tube repair can now be made. The first step is naturally to locate the puncture. This can be done in several ways. If the puncture is large it will be found by the eye; if it is small the casing should be slowly turned about, with the bottom close to the ground, noticing if dust on the ground is blown about by air escaping from the tube. If this is seen, the exact spot at which the leak occurs may be found by moistening the tip of the finger and rubbing it about the surface of the tube in the vicinity of the spots at which the leak is known to exist. Very often the leak may be detected by the hissing of the air as it escapes from the tube, or, as a last resort, it can always be found by immersing the partially-inflated tube in a pan of water and noting the spot from which bubbles issue. By either of these methods the leak will be found and the repair can be made.

The tire repair kit generally contains a plastic rubber preparation for the repair of small leaks and a set of repair patches and cement for making temporary repairs on larger punctures or tears in the inner tube. In case the leak is small, the rubber in its vicinity should be cleaned by the use of a little gasoline. The interior of the leak can very often be best reached by winding some waste tightly about a thin splinter of wood, dipping it into gasoline and pushing it into the puncture. It is then twirled between the fingers in order to thoroughly clean the rubber in the vicinity of the leak. A small piece of sandpaper or emery cloth is then used for the purpose of roughening the surface of the tube around the edge of the leak. The rougher the surface is made with the emery the better the repair will be. The next operation is to take some of the plastic compound and knead it in the fingers until it is thoroughly moist. Roll a small piece between the fingers into a sausage shape and then push it through the puncture, leaving about half its length on the outside of the tube. By a little manipulation it is possible to spread the plastic on the inside of the tire to a certain extent. The outside plastic is then spread in the same manner, after which the tire is pumped up and the repair is complete. The action of the plastic is such that when the tire is again pumped, the pressure will force it strongly against the inside of the casing, while the heat generated in the tube by the motion of the car will harden the plastic until it becomes almost an integral part of the inner tube.

For larger leaks the method used with the plain plastic is impracticable as it will be blown out before it gets a chance to harden. In this case a patch will have to be fitted. The clean-

ing operation with gasoline and the roughening with emery or sandpaper is the same as that just described for the plastic repair with the exception that it will be necessary to roughen the tube in the vicinity of the leak for the area that is covered by the patch. It has been found to be a very good plan, in using sandpaper, to use a wrench handle or a piece of wood of like shape as a block upon which to hold the sandpaper while rubbing the tube. This gives a firm surface back of the sandpaper and it will attack the surface of the rubber more readily. The surface of the rubber patch is now roughened in the same manner as the surface of the tube and a coat of cement is given both the surface of the tube and the patch. Do not slap the patch directly on the rubber as soon as the cement is applied. This is the cause of more failures than anything else when attempting to repair a puncture. The patch should not be applied to the tube until the cement has become so dry that it is very sticky. It is then pressed against the tube firmly and held for a few minutes until it has become set. After waiting about 5 minutes for the cement to dry well, wet the patch around the edges and slightly inflate the tube to see if the leak has disappeared. If it has not, bubbles will show and the patch will have to be torn off and the surface again rubbed with emery or sandpaper, cement applied and a patch, preferably of larger size, attached. Before replacing the tube in the casing it is necessary to ascertain if the cause of the puncture has been removed. If this is a nail or splinter it will often be found sticking in the casing, whence it should be removed, being careful to clean out the cut with a little gasoline and to put some cement in the hole to keep out moisture and dirt. These repair

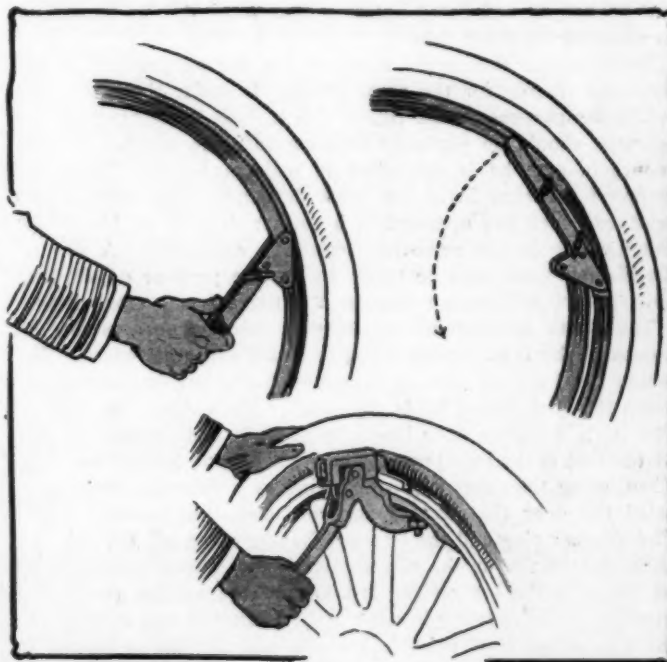


Fig. 2—Detaching the Dorian rim; using O-Tak-A Iron

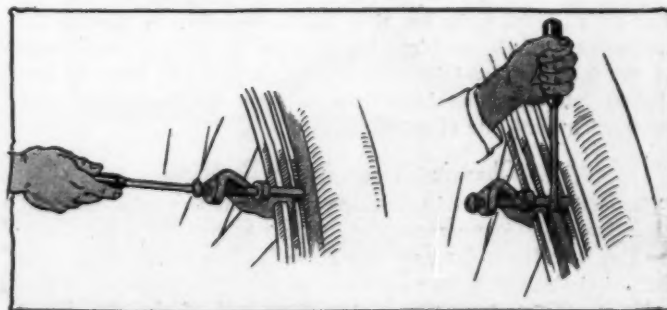


Fig. 3—Use of the Tobey device for removing Q. D. rims

directions are the same for any inner tube whether it is used in connection with a casing adapted for a quick detachable rim or not.

The inner tube is now ready to be replaced in the casing. It is inflated just enough to round out its form and to permit its fitting into the casing without having a twist in it. After placing the tube in the casing the wheel is rotated until the hole in the rim for the valve stem is at the top, whereupon the valve stem is slipped through the hole and the nut and washer are placed in it, but screwed up only far enough to retain it. The inside bead is now slipped over the rim and the lugs which are then shoved up to allow the bead to slip under the flange. The tire irons will be useful in getting the tire over the rim and the method of their use will depend upon the type employed. Nearly all of them hook over the rim, which furnishes a fulcrum. While the inner bead is being forced into position, the outer bead is allowed to lie outside the rim. When the inner bead is in place, the lugs are all worked up and down to determine if the inner tube is caught beneath any of them. If they move easily the operator will know that the inner tube is free, while if they are jammed it will be the inner tube that is the cause of it and this will have to be disengaged as gently as possible so that no harm will be done.

### Replacing the Tire Casing

The bead at the outer rim-edge can now be pried into position. A short length of the bead is pried into the rim at a time. If the operator tries to do too much at a time he will find that the work is much more difficult and takes longer. When the clincher bead is placed in the rim and under the lugs, these are worked up and down again so that there will be no danger of pinching the inner tube.

Demountable rims were invented for the purpose of saving time and trouble for the automobilist. In order that they may fulfill this purpose to the fullest extent, it is necessary that the operator should be perfectly familiar with the method of procedure in case he is compelled to make a repair. There are many of the rims involving quick detachable and demountable features which are operated in a similar manner as far as the demountable or tire removing feature is concerned. A few of the distinct types may be taken up for the purpose of showing how the tire is dismounted when it is necessary to repair a tire.

The Booth demountable rim may be removed in a minute by a person who is not endeavoring to attain any great speed. The notched end of the tool furnished with the tire is inserted beneath the latch which holds the ends of the locking ring, Fig. 1. The latch is sprung open like a knife blade and the narrow end of the tool is inserted beneath the right end of the locking ring. Then, using the other end of the ring as a fulcrum, the ring is pried out over the edge of the rim and thus sprung loose. The clincher ring and the tire can then be taken off the rim. In replacing the tire on the rim the tire is first pushed into position on the rim, the lug on the left end of the locking ring being inserted in the aperture in the rim. The ring is now sprung into the rim as far as is possible by hand and the rest is sprung in with the tool by placing the tool under the ring with its end upon the rim. The tool is then pulled up and the spring of the ring causes it to slip down the tool into its place on the rim. The ends of the wing are then drawn together by placing the hooked ends of the tool into the slots on the left and right ends of the lock ring and by closing the pliers. The latch is now slipped into place a short distance with the hand and then squeezed in with the pliers.

### Changing Tires on Q. D. Rims

The Baker rim is of distinctive style and is easily operated. The best manner of getting at the rim when removing the tire is to lay it flat upon the ground. The anchor plate over the cut in the rim is then removed by unscrewing the nut which holds it. Then, beginning at the short end of the rim, insert the sharp end of the tire tool which accompanies the rim be-

neath the bead of the tire. Pry the rim down so that the gap at the split in the ring will widen. Repeat this operation by turning the wheel over and forcing the tire tool between both beads of the tire and the rim. This will free one end of the rim from the tire. The free end of the rim is taken in the hands and, by placing the foot on the tire, the rim can be pulled entirely free. The tire may be put back on the rim by starting the beads correctly at one point and then following around until the end of the rim is reached. This can be pried in with the tool. It is best to start the tire by putting the valve stem in first.

The Standard Universal rim has a unique method of fastening, employing a series of bayonet locks. These are all disengaged at once by slipping the tool over the plate through which the valve passes. The handle of the tool is pushed away from the operator with one hand while he holds the edge of the rim with the other. This will disengage the bayonet locks and allow the two parts of the rim to be taken apart. When mounting the tire, the procedure is just the opposite, the wider part of the rim being first laid upon the ground, the bead of the tire engaged with this and then the other part of the rim laid upon it and pushed into place. The bayonet locks are then engaged by pulling on the tool. A solution of graphite in good mineral oil should be applied to the locks on this rim every month so that it does not get rusty. This is also good advice for all the other rims as rust prevents the easy operation of the locks.

The Lambert rim is distinct in that the rim itself is hinged, folding down out of the tire. The section of the rim which folds down is loosened by first removing the bolt which holds it and then slightly jarring the tire on the ground. The rim may then be pulled out. Replacing the rim on the tire is very readily accomplished by putting the beads in place all the way around except at the short, jointed part. This may then be folded into place and the remainder of the bead put in place. The bolt is then refastened.

### Special Tools for Demountables

The speed with which the Dorian rim can be taken off and replaced is its great feature. A complete tire change may be effected in 3 to 5 minutes. The rim is allowed to rest against the body and the two tools are inserted in the slots in the rim. The rim is collapsed by pulling up on one tool and pushing down on the other. It is not necessary to remove the tools. The tire iron is then inserted between the rim and tire in the open space where the rim has been collapsed and the beads are then thrown out of the rim all around the circumference. To replace the tire in the rim the operations are exactly reversed.

The Firestone demountable rims are removed by simply inserting a screw-driver and prying out the locking ring. This has proved a very satisfactory method and one which offers little trouble. For this style of rim, several tools have been invented for the purpose of pushing back the clincher ring while the locking ring is being removed. Two of these, the Tobey, Fig. 3, and the O-Tak-A, Fig. 2, are shown. The Tobey is first tightened with a screw-driver and then the screw-driver is inserted between the ends of the locking ring and the bolt is used as a fulcrum to pry out the ring. The O-Tak-A clamps on the rim and by a large leverage enables the operator to push the tire back from the clincher ring on either side of the wheel, thus rendering it easier to remove the locking ring from the rim.

The Detroit demountable rim is held by means of a bolt and, when demounting the rim, it is merely a question of taking out this bolt which removes the wedge locking the rim in place. After removing the rim from the wheel, a lock underneath the rim near the valve stem is removed. Then the ends of the rim, which are fastened by a ground joint, can be brought closer together, making the diameter of the rim less than the diameter of the tire. The casing is then taken directly off the rim. A rust-breaking tool accompanies this rim. It consists of a device which fits over the knurled screws on either end of the rim. These ends are then drawn together by turning up on a wing nut and the force thus exerted breaks the hold of the rust.





# The Ideal Automobile for 1913

*Some of Our Readers' Conceptions  
of What Next Year's Car Should Be*



## Full Equipment Is a Feature

EDITOR THE AUTOMOBILE:

I would like a 6-cylinder motor with cylinders cast in pairs, with a bore of 4 3/4 inches and a stroke of 5 3/4 inches. I should prefer 2 7/8-inch valves to be on opposite sides on pivots. Force-feed and splash would be used in my lubrication and a 10-gallon reservoir. For my clutch I would use a dry multiple disk, bronze against steel. I would use a selective type of transmission, with sliding gears, four forward and one reverse, direct on fourth gear. My car would be shaft-driven, with a floating rear axle of the drop-forged type as on the 1912 Alco. My front axle would be a one-piece drop forging. I would have expanding and contracting brakes on the rear drums, the drums to be about 17 inches in diameter. Six-inch channel steel would be used in the frame.

The tread would be 56 inches, and I would use 36-inch by 4-inch tires on the front, and 36-inch by 5-inch on the rear. The car would be equipped with Diamond tires, and Continental Gilbert-type rims. The springs would be semi-elliptic, and would be 36-inch by 2-inch in the front, and 60-inch by 2 1/2-inch in the rear.

I would use a 35-gallon tank for my gasoline, and there would be pressure feed. I would use plain bearings in the motor, and Hess-Brights throughout the rest of the car. I would use a Newcomb water-jacketed carbureter. The weight of the car should be about 4,000 pounds, and the speed should be about 70 miles an hour.

My equipment would include the following: top, slip side curtains, slip covers, windshield, Warner clock and speedometer with electric light, tire irons, trunk rack, Klaxon and bulb horns, foot and robe rails, muffler cut-out, oil and electric side and tail lights, gas headlights with Prest-o-Lite tank, tool box containing tools, tire tools, jack, power tire pump and extra parts, electric top and step lights, magneto cover, starting-handle strap, compression release, gasoline pressure pump on dash, trunk and dust cover, clock for tonneau, two extra rims, two shoes, tubes and tire covers, Weed chains with wheel springs, shock-absorbers, starting device and a rubberized dust cover.

## Chain Drive and Wire Wheels

EDITOR THE AUTOMOBILE:

I have been reading for some time The Ideal Car for 1913 and would like to offer my opinions as to what a good car should be.

It should be a racy car, seating two in low seats, with a 20-inch steering wheel. The motor should have a 6-inch bore and an 8-inch stroke, with 3/4-inch overhead valves beveled at 15 degrees. The push rods should be made of 7/16-inch nickel steel. This size motor would give from 80 to 90 horsepower at speeds of from 20 to 60 miles per hour. The crankshaft, a very important part of a car, should be made with three large bearings, 3 inches in diameter and should be made of chrome-nickel steel.

The transmission should have four speeds, direct drive on fourth speed with a gear ratio of 1 3/4 to 1 for speed and 2 1/2 to 1 for touring. It must be a double side chain drive with wire wheels, 34 by 4 inches in the front, and 35 by 4 1/2 inches in the rear. The front axle is made of nickel steel, I-beam section, also the rear axle. The car is set low but the frame is above the axles.

The body should have two racing seats with small side doors. The ignition should be by two Bosch high-tension magnetos, with double spark plugs fired simultaneously. The carbureter is a Venturi-tube type.

The equipment should include a Klaxon horn, and very powerful headlights. The rest of the equipment should include a 50-gallon gas tank and an oil tank placed behind it. This car, if made right, should cost \$8,500 to \$9,000.

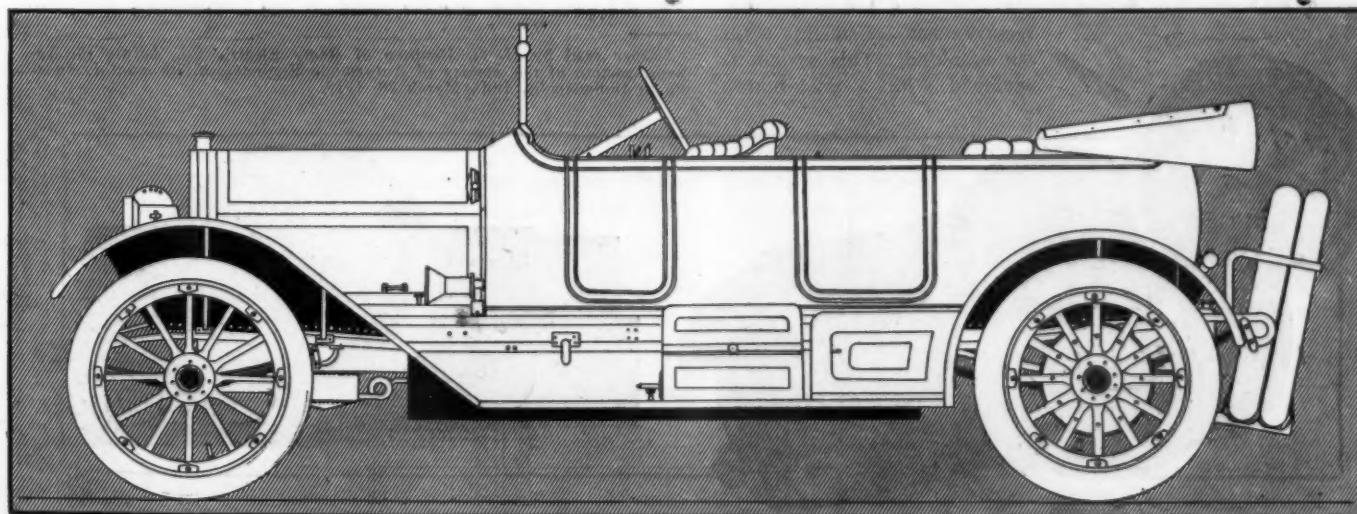
New York City.

FRED WELLS.

I would specify a 5-passenger body with 10 inches or more of upholstery. The car should be made of the finest material throughout with above equipment and should not cost more than \$6,000.

Dover, N. J.

JAMES B. TONKING.



Side view of the 1913 Ideal car as proposed by James B. Tonking, of Dover, N. J.

# Relation of Ignition to Gas Self-Starters\*

## Description of New Remy Vibrator Coil Producing a Spark Intense Enough to Ignite Even a Poor Mixture of Air with Gasoline or Acetylene

**T**HERE are two general methods by which self-starting of engines is accomplished:

One consists in merely substituting another source of energy for the muscular efforts of the chauffeur. This may be compressed air, electricity, or special mechanical device. In the former case the air may be introduced into the cylinders through suitable valves, causing the pistons to move by its pressure on them. The electrical and mechanical devices apply the power to the crankshaft of the engine.

The second general method consists in producing an explosion in the cylinder of the motor when the motor is at rest, and by this means starting the engine. It is the problem of the acetylene gas systems to get the gas into the cylinders. It is the problem of the ignition makers to explode this gas by means of an electric spark. While these problems are distinctly different, yet they are so closely allied in actual operation that the maker of the starter and the maker of the ignition apparatus can assist each other and the entire industry to a large extent, if each will work out his proposition, keeping the object of the other in mind and so co-operating for the best ultimate results.

The operator of a car finds that the fuel mixture may have been left in the cylinder since the last run, or it may be introduced there just previous to starting. In the latter case, instead of the gasoline mixture, some other substance giving better starting conditions, such as acetylene, may be employed.

### Hot Spark for Acetylene Systems

**T**he charge which is exploded to start the engine, and also the next few charges, are frequently of inferior quality and do not readily ignite.

In other words, the conditions for starting may not be favorable and the entire result may depend upon most perfect ignition. It is the object of the ignition designer and maker, therefore, to produce an ignition system that will overcome, as far as possible, all adverse conditions.

A regular dual ignition device incorporating a battery wired through the same coil as the magneto offers a generally satisfactory means of starting without cranking. This system is equipped with a push-button

which acts on the battery current in a manner exactly analogous to the action of the magneto timer or contact-breaker. The push operation is equivalent to making the circuit, and the release is equivalent to breaking the circuit. The operator, by holding down the button, may release it gradually, making the break a slow one and therefore not as effective as a snap.

### Transformer Type of Coil Used

**T**he spark is produced in the cylinder containing the fuel charge or upon the working stroke. The connections of this push arrangement are necessarily in parallel with the magneto timer or contact-breaker. The spark will not occur when the magneto contact-points are closed.

It is possible for the motor to stop occasionally in such a position that the contact-points will be closed. This happens very infrequently. In fact, our experiments show that it stops in this condition only about once in fifty times.

It is impossible to eliminate this occasional failure altogether because a cam that would take care of this feature every time would not be entirely satisfactory for its chief work while the car is running.

Then again, it is possible for the motor to stop in such a position that a spark occurring even with the magneto timer contacts closed would not furnish the desired results, for example, if the motor stops so the exhaust valve is beginning to open—or about 45 degrees before bottom dead center, or on top dead center. Theoretically, motors do not stop on dead center but they do in actual practice, especially when new.

Of course the single spark system is not as positive for igniting as a shower of sparks where a bad mixture must be fired. This bad mixture, of course, may be the result of bad gasoline carburetion or a faulty mixture of acetylene and air.

This, together with the fact that a vibrated spark may be produced to operate regardless of the position of the magneto timer contact, and also because the operator cannot interfere with the quick breaking of the circuit has resulted in the demand for what we style a vibrator switch outfit.

In this new Remy vibrator outfit the coil is contained in a tube,

\*Paper read by H. G. Denprey of Remy Electric Co., before the Indiana Section of the Society of Automobile Engineers at its monthly meeting in Indianapolis, Ind., March 28, 1912.

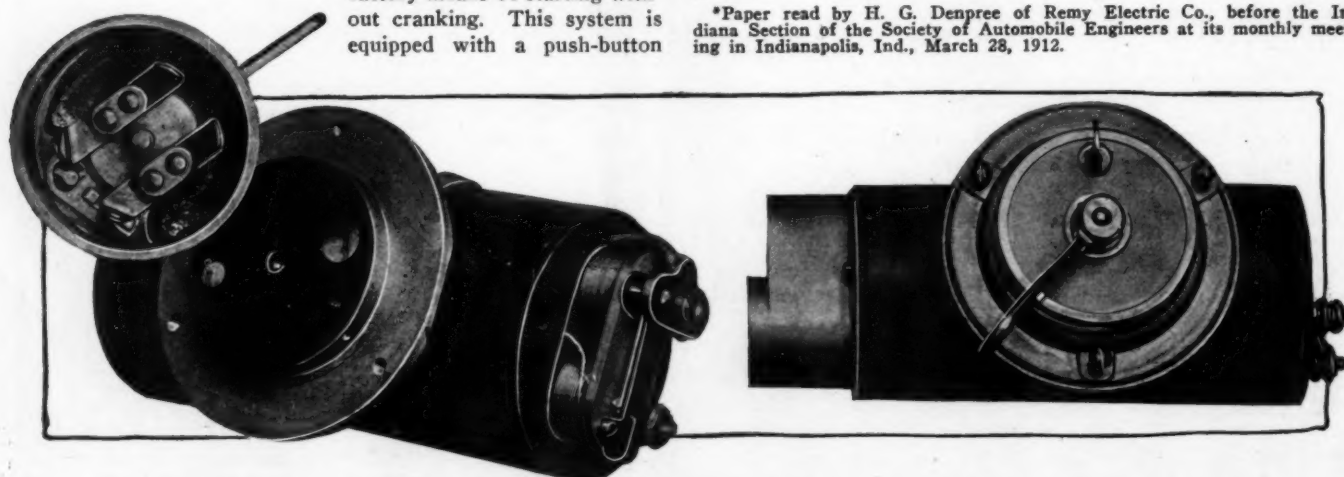


Fig. 1—Remy coil switch and contacts and vibrator end uncovered. Exterior view of the Remy vibrating coil assembled



on one end of which are the vibrator and the binding posts for connection to the battery. The other end contains the binding posts to be connected to the magneto cable. The vibrator is inclosed.

The cylindrical switch casing is securely fastened to the middle of the tube. This casing projects through the dash. Surrounding the projecting switch casing is a finishing ring. This ring and the switch are the only parts of this system which are on the driver's side of the dash. The complete unit is secured to the dash by three screws, passing through the finishing ring and the dash to tapped holes in the base of the switch.

The switch lever is permanently attached to a spindle projecting from the switch casing, and is adapted to either hand or foot operation. It may be locked in the off position by removing a key which fits a keyhole located above the switch lever.

#### Construction of the Kick Switch

The switch lever has three positions, an off position, a magneto position and a battery position, being the middle, right and left positions respectively, besides the hereinafter described starting position. When the switch is in the battery position, the vibrator is in operation, under the control of the timer. In moving the switch lever from the off to the battery position, the starting position is passed through, and the vibrator is caused to operate and produce a shower of sparks regardless of the timer.

When the switch passes over this starting position, however, sparks are supplied with certainty, and by the further movement of the switch the sparking is put under the control of the timer. It is not necessary to stop on this intermediate position, but merely to turn the switch from the off to the battery position with a continuous motion, and then, due to the use of the vibrator, a shower of sparks is obtained after the engine has commenced running which is of great value, because the first few charges to be exploded when starting may consist of bad mixtures, which require several sparks to ignite them.

By passing through the intermediate vibrator position the series of sparks occurs only in the cylinder ready to fire. By the time the next cylinder in order is ready to fire the vibrator spark is under control of the magneto timer and hence the spark occurs in the right cylinder. In other words, if the vibrator spark did not pass immediately under the control of the position timer of the magneto it might continue to spark in the wrong cylinder, causing a backfire or failure to ignite the next cylinder.

When the switch is in the magneto position, the vibrator is out of action, single sparks being obtained.

This vibrator switch ignition outfit is designed to operate with either two, four or six cylinder motors and with single or double set of plugs.

#### No Hysteresis Makes Coil Efficient

Type VS vibrator coil is of the transformer or umbrella type. The core is composed of a number of laminations of annealed alloy steel, cut, not stamped, and about 1-50-inch thick. The composition of the steel is such as to entail a minimum of hysteresis or magnetic lag in the core.

The umbrella type of coil has been selected for this vibrator in order to make possible the production of an intense spark. The makers of this coil are of the opinion that, with a steadily deteriorating degree of gasoline, the spark gaps will be widened in the future, and that the problem facing the ignition-device manufacturer is to construct apparatus capable of producing a spark of very high tension. The transformer type of coil shown in Fig. 1 has the advantage of permitting a relatively great amount of winding to be used. There is enough room on the VS coil for a secondary winding producing a spark tension three to four times that required nowadays and sufficient to jump a relatively wide spark gap. The object of the Remy company in designing a coil of these characteristics is to construct a product adaptable to a motor using gasoline of low thermal value, which must be ignited by means of a highly intensive spark.

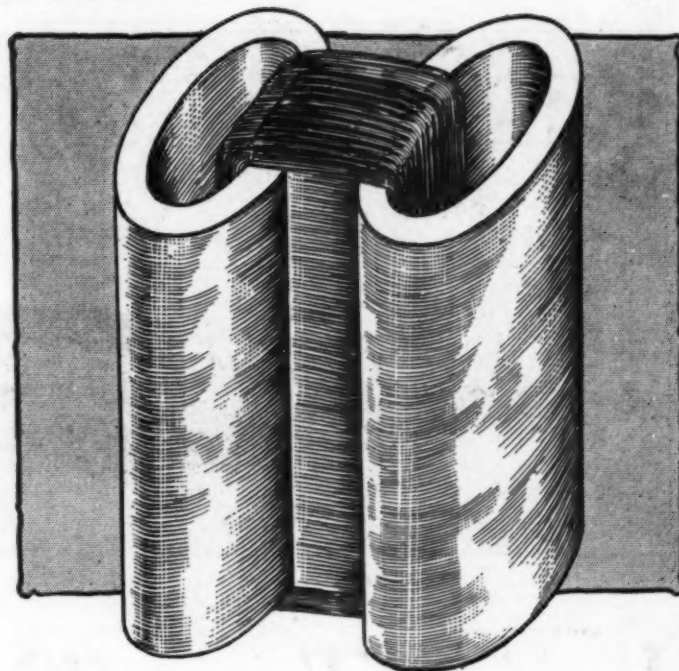


Fig. 2—Scheme of the transformer coil used in the new Remy Vibrator instead of the straight-bar type of induction coil

In the type VS coil the condenser is contained in the coil casing; but, where length of coil is an item, the type RL vibrator coil which is somewhat shorter than the VS design, may be used. In this construction the condenser is contained in the arch of the magneto, which is called model RL.

The method of installing the vibrator coil and of connecting it to the magneto is most simple. On one end of the casing there are three terminal screws marked red, green and yellow, which are connected to the terminals so marked on the magneto. The other end of the casing carries two terminal screws which are connected to the battery poles. A button on the vibrator is connected to the center of the distributor on the magneto.

#### Point Breeze to Be Abolished

PHILADELPHIA, April 15—The fact that the Point Breeze track is no longer available for race meets and that the course of the Belmont Driving Club at Narberth is the only one obtainable around Philadelphia has created a mixup and consequent revision of the plans in the schedule of local motoring events.

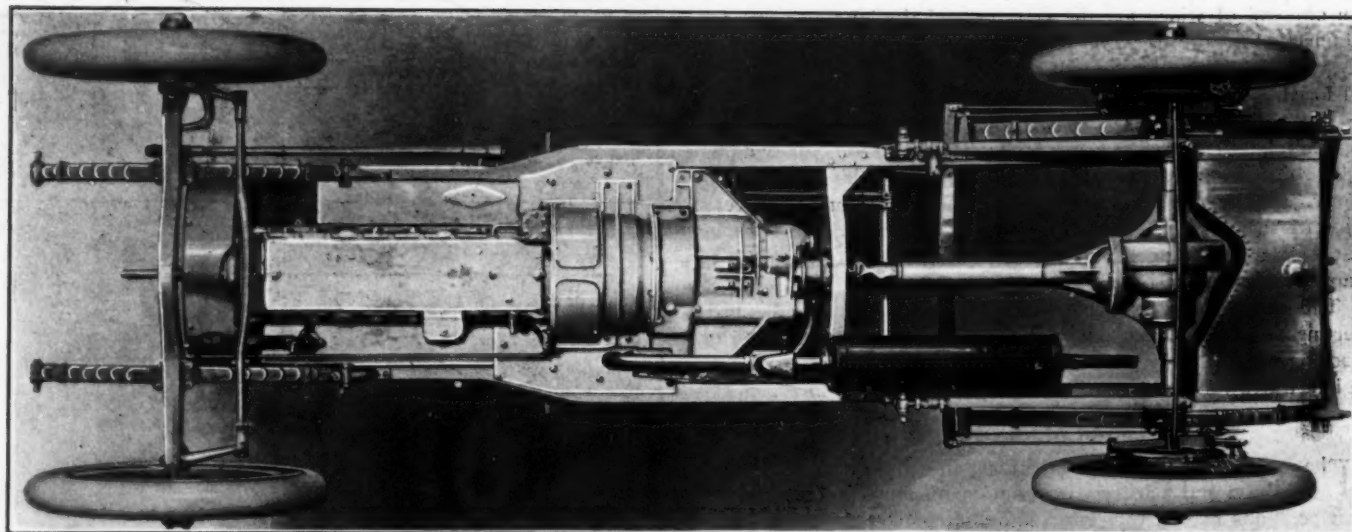
Some time ago, before it was known that the Point Breeze property was to be sold and the track abolished, plans had been formulated by the Quaker City Motor Club for a track meet to be conducted on June 8. As a result, when it was found that Point Breeze was out of the question the Belmont Driving Park was sought for the same date.

As in the lease for June 8 previously granted the Quaker City Motor Club there was a stipulation that no automobile racing be permitted on the Belmont track prior to that date, if it interfered with the May carnival. To further complicate the situation, June 8 and 15 were construed as conflicting dates.

A solution of the problem was had when at a recent meeting of the board of governors of the Belmont Motor Club it was decided to indefinitely postpone the proposed carnival and the race meet until a later day in June.

#### L. I. A. C. Orphans' Run June 4

The annual orphans' outing of the Long Island Automobile Club will be held June 4. The run as usual will be to Coney Island. Preparations are already under way to secure automobiles and funds to make the affair as great a success as was the one last year.



Chassis of the Type 72 Lozier six-cylinder car, showing complete housing of the power plant

## Lozier Type 72

**New Six-Cylinder Model With Steering Wheel to the Left and Levers in the Center for Right Hand Control**

**Specially Designed Ignition and Oiling Systems—Air Pump for Fuel Pressure**

A NEW Lozier model for 1913 has been announced. It is a brand-new model known as type 72, a model which, while it carries such well-known Lozier designs as a six-cylinder ball-bearing motor using T-head cylinders cast in pairs, has over a dozen new features. Type 72 marks the entry of this company into the field of left-side control; that is, putting the steering wheel on the left and placing the change speed lever and the emergency brake lever in the center of the floor boards for right-hand operation. This action of the Lozier company, taken in connection with similar activities of other large companies would indicate the eventual departure from right-side control for American conditions. Changing the steering column to the left side has alone necessitated many alterations of 1912 design. In the first place the exhaust valves, which were on the left side, have been transferred to the right in order that the exhaust manifold and steering column will not interfere. With this change both the magneto and carbureter are located on the left side, Fig. 4, the magneto on the front motor leg and the carbureter in the middle. The water pump is now well forward on the right side, the water manifold being redesigned to meet this new position.

The new motor is a clean-cut

job. It has a bore of 5 3/8 inches, a stroke of 6 inches giving an S. A. E. rating of 69.1 horsepower. These measurements are the same as used in the present four-cylinder, type 46 and as not increasing the bore or stroke might be interpreted as giving no increase in horsepower per cylinder; yet more power has been obtained by redesigning the valves. On the 1912 model they were 1 15/16 inch in diameter. They are now 2 inches. But the Lozier engineer has gone further and changed the angle of the valve seat from 45 degrees to 30 degrees. Not only are the valve seats flatter but they are narrower, and as a result an increase of 12 horsepower is claimed. Using the 30-degree seat is a step in the direction of the flat valve seat, which has been used by some of the best-known European car builders, it giving a greater valve area opening, thereby increasing power by getting a bigger explosive charge into the cylinders. The narrower valve seats have one other big advantage over the wider seat in that there is less surface for carbon deposits to gather, thereby reducing the possibility of loss of power due to loss of compression caused by carbon on the valve seatings.

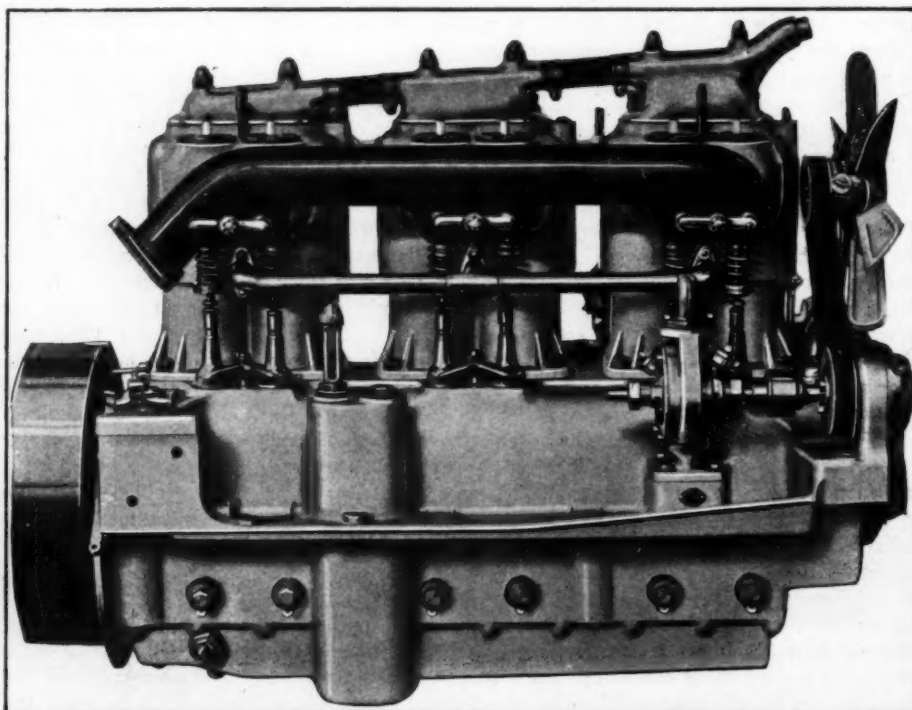


Fig. 2—Right side of new Lozier motor, showing accessibility of parts



In Figs. 2 and 4 the leading characteristics of the present motor are shown: The accessibility of the valve springs on both sides is apparent. On the exhaust side neither the exhaust manifold nor the intake water pipe interferes. The former is carried higher than the openings into the valve chamber and the water pipe is low. On the intake side the manifold is carried high, and the carbureter is also carried well up due to the use of pressure feed of gasoline. The valve springs of the two front cylinders are not even hidden by the magneto.

Besides simply increasing the diameters of the valves and altering the seat angle there have been many other changes made: The inner walls of the valve chambers have been machined all over in order to have a smooth surface on which there would be little opportunity for carbon particles to anchor, as well as to insure even compression in all six cylinders. Gas-tightness is insured by the use of gaskets under the valve caps, which thread into the valve chamber tops.

### New Ignition System a Feature

The ignition system is new and is the result of the wide experience of the company in racing during the past two seasons. The big change in ignition is the adoption of the two-spark Bosch system, by means of which two sparks are made in perfect synchronism in each cylinder, one occurring over the intake valve and the other over the exhaust valve. Much increase in power is obtained in a motor of T-head design by such ignition. The two sparks are produced by a Bosch dual-type magneto made with a double distributor, Fig. 4. In this magneto there is a double secondary winding on the magneto armature, one winding connecting with each of the two distributors, both of which are placed side by side on the breaker box end of the magneto, and which, though close together, are entirely separate so far as operation is concerned. The set of spark-plugs carried over the intake valves are connected with the battery for starting; and the system is so arranged that the motor can be run with but this set in operation, the object being to use the magneto for very low-speed work.

A brand-new oiling system has been installed on the motor. It is best described as the circulation trough type. Fig. 3 illustrates it and this illustration is supplemented by Fig. 5. The lower half of the crankcase has been entirely redesigned to make this new system possible. This part of the case is divided by

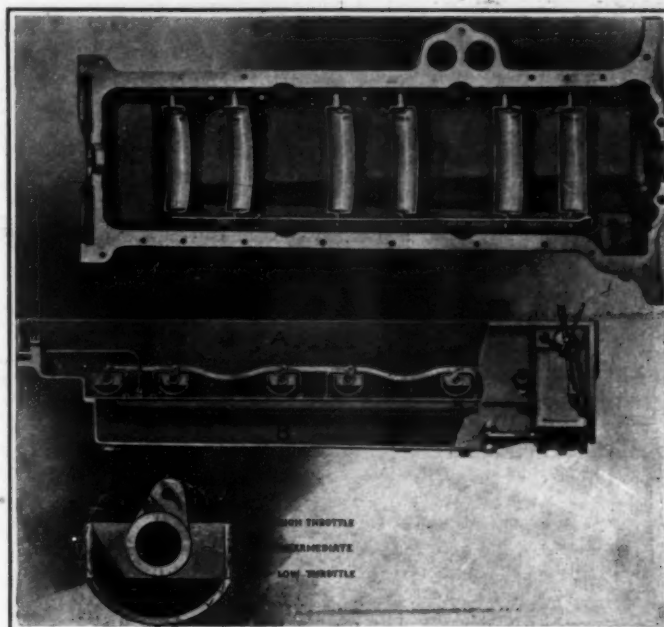


Fig. 3—Plan and sectional views of oiling system, showing tilting troughs

a false bottom into upper and lower compartments A and B. In the upper is a series of six adjustable oil troughs, one beneath each connecting-rod; in the lower is the regular oil reservoir. A gear oil pump placed at the left rear, Fig. 4, delivers the oil from a suction chamber in which the pump is located through an indicator mechanism on the dash and thence through a copper pipe into the individual troughs under the connecting-rods. The big feature of the new oil system is that these troughs may be tilted as shown by dotted lines in lower left of Fig. 3. This tilting is controlled from the accelerator pedal so that as the throttle is opened to give more gas these troughs are brought to the horizontal position in order that the connecting-rod scoops may dip deeper into the oil and more oil be splashed for motor use. This is a case of more power, more oil; the harder the motor

works the more oil it receives.

This tilting is accomplished as follows: Each trough is supported through pivoting at each end, as illustrated in Fig. 5. Attached to one end of each trough is a short lever L, Fig. 3, to which attaches a long bar LI which bar is connected with the accelerator pedal. When this bar is moved the troughs are tilted sidewise and not lengthwise as in many of the Knight-type motors in which the oil trough is used. The different oil levels in these troughs are indicated by dotted lines in the lower left Fig. 3.

There are some other general features of interest in the oiling system. The upper compartment A of the crankcase base collects the overflow oil from the tipping troughs, which overflow finally drains into a sediment chamber at the rear end of the case. In the sediment chamber is a vertical wall forming a dam over which the oil flows when the sediment chamber is full. The oil which flows over this dam drops into a similar compartment known as a suction chamber.

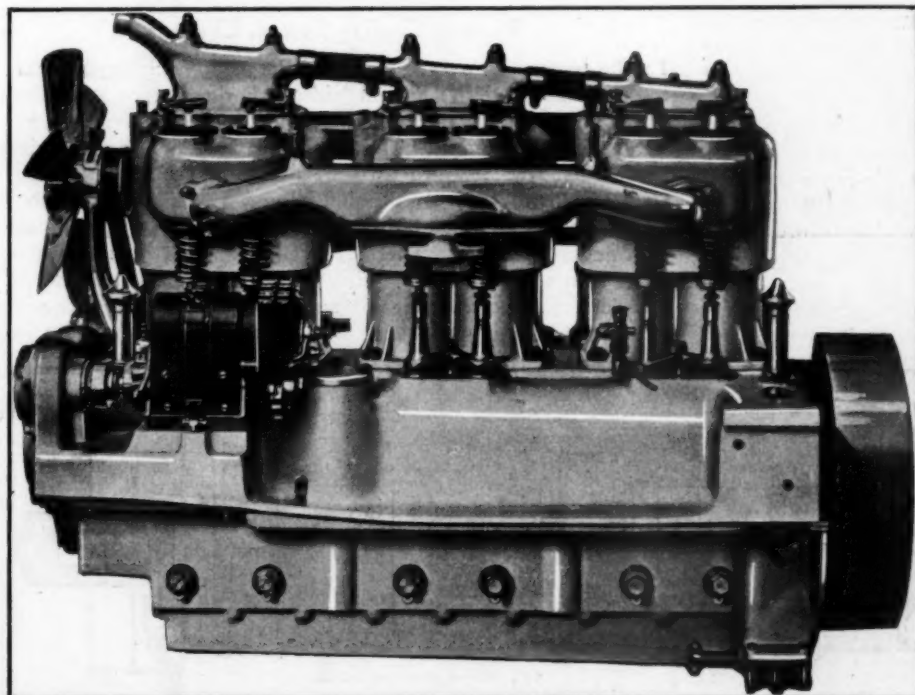


Fig. 4—Left side of new Lozier motor, showing magneto and carbureter

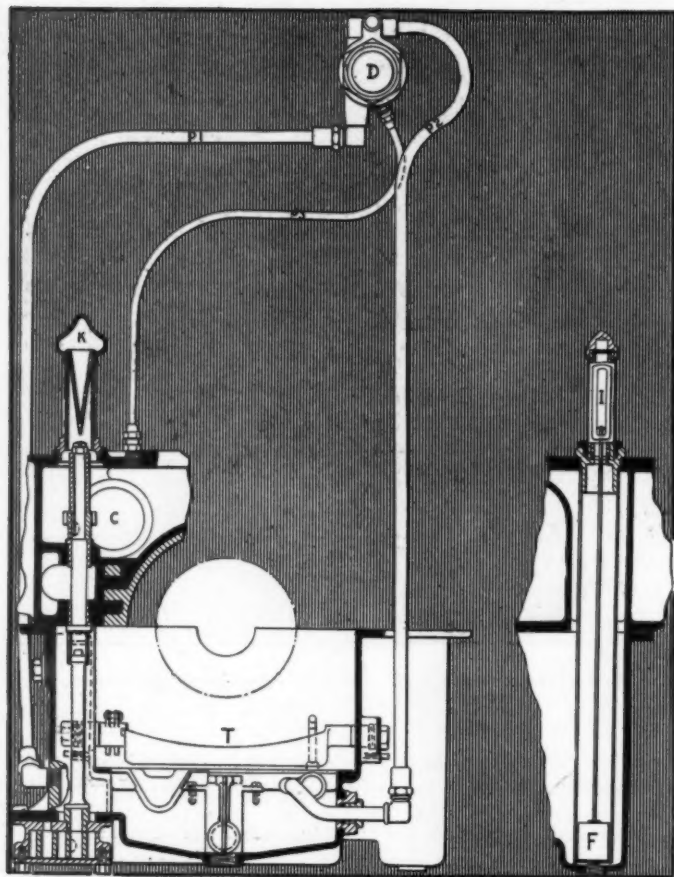


Fig. 5—Illustrating manner of tilting oil troughs. Section of oil indicator

From this compartment the oil is drawn for recirculation. The construction of this section is interesting in that it contains the screens for cleaning or straining the oil, and a valve arrangement in the front partition that insures an oil supply when the motor is descending hills. There are two strainers in the compartment through which the oil must pass before entering the pump, one very large one that arches over almost the entire chamber, and a smaller cylindrical one that is attached to the end of the oil intake pipe. The front partition of the suction chamber is a high one, and in the center of it is pivoted a gate valve consisting of a disk that covers a round hole at the bottom of the partition. This valve opens when the motor is inclined so that the oil flow is toward the rear end of the motor; and it closes when inclined in the opposite direction. From this it may be seen by those familiar with previous Lozier designs that instead of the plain, force-feed splash lubrication system employed heretofore, a circulating splash is used.

There is an oil lead near the front end which feeds to the timing gear teeth. A drain plug in the sediment chamber permits the dirt collecting in the bottom thereof to be drained out

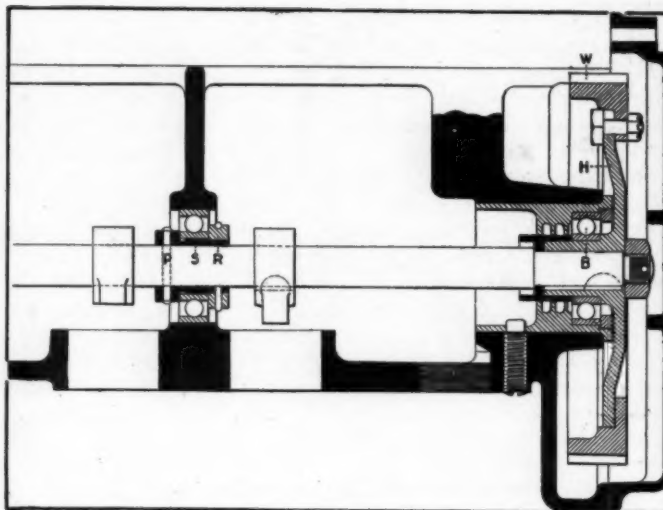


Fig. 6—Intake camshaft showing ball bearings, B, inside gear, W-H; also sleeve, S; ring, R; and pin, P, for mounting bearings

with the oil contained therein. Thus the dirty oil is removed without losing the bulk of the oil supply in the main chamber. In order that the operator may conveniently learn how much oil there is in the motor reservoir a float indicator I, Fig. 5 has been provided which is conveniently arranged on a rod on the float F. With this arrangement the operator can easily see the height of the oil in the reservoir while he is replenishing the supply.

A new motor feature is the air pump for maintaining air pressure on the gasoline tank for pressure feed to the carburetor. This pump is novel in that the plunger is the valve lifter rod for the intake valve on the fifth cylinder, Fig. 4. A section of the pump is illustrated in Fig. 10. The valve lifter head is of large diameter and carries the roller R bearing on the cam. A check valve V is used. On the downward movement of the lifter this check valve is lifted from its seat by the air rushing up past it. When the lifter descends the valve seats and the air is forced out past a check valve V1 to the gasoline tank. A safety or blowoff valve V2 is provided. The necessary air pressure is regulated by the spring above the blowoff valve.

#### Pump in Cooling System Changed

In the cooling system the design of the pump is changed so that the water enters on both sides of the rotor; this eliminates end thrust of the rotor hub, which prevents wear and reduces the power consumed in driving the pump. The pump also has been moved forward to make room for subsequent attachment of a lighting dynamo behind it; and special pads have been cast in the horizontal web of the crankcase for the attachment of a device of this character. The holes in each cylinder water connection are graduated in size, however, so that each pair of cylinders may receive the same amount of water. Improvement is to be found in the waterjacket covers in that they are of

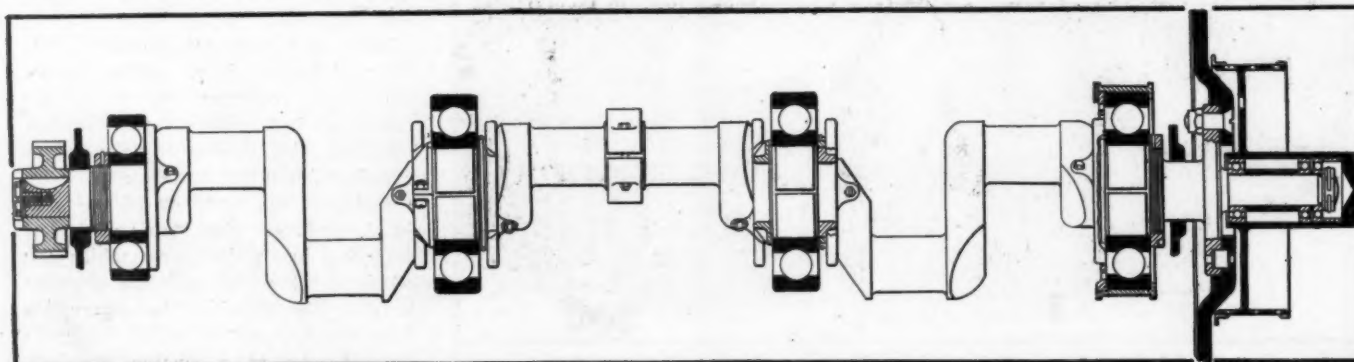
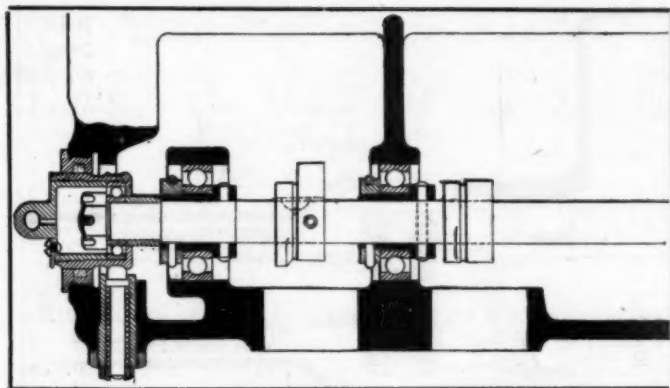


Fig. 7—Crankshaft of Lozier 72, showing the location and attachment of the four annular ball bearings





Showing mounting of ball bearings on exhaust camshaft

neater and simpler design, and give a smoother water passage. Each cover is held by but two large studs centrally located, instead of being secured by a series of small ones arranged around the edge of the cover.

#### Stiffening to Reduce Vibration

The fan-belt now is made with a leather face and canvas back instead of all leather, which gives a more durable construction; and to facilitate replacement a new design of telescoping coupling has been devised which permits quick and easy replacement of a new endless belt whenever necessary. The mechanism for maintaining the proper tension of the belt remains unchanged, but the fan itself is 1 1-2 inches larger in diameter. Greater cooling efficiency is also obtained by enlarging the radiator, it having been increased 1 1-2 inches in height and 1 1-2 inches in thickness.

An important motor improvement is obtained by moulding into the upper half of the case steel castings for the support of

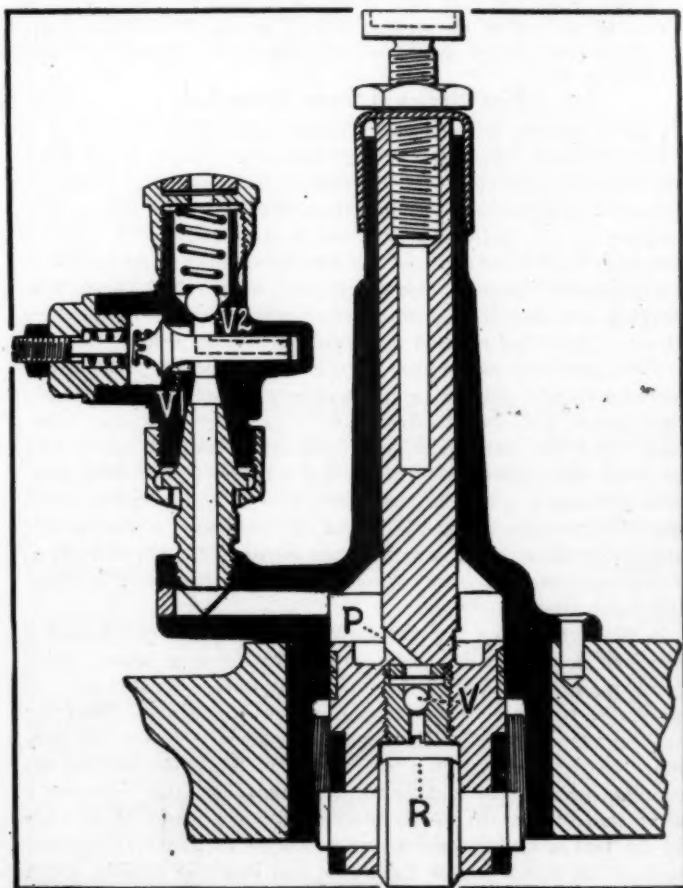


Fig. 10—Section of pump for air pressure on gasoline

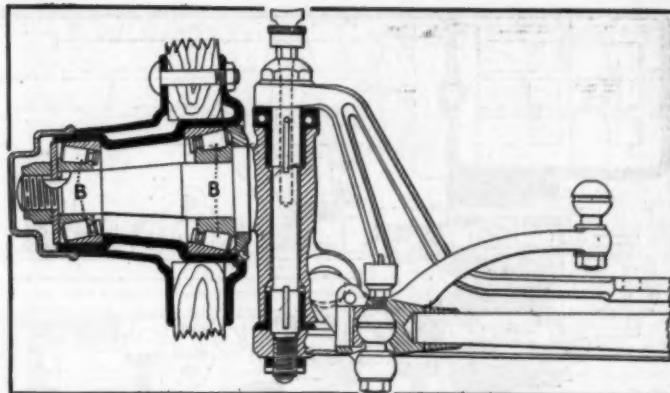


Fig. 9—Hub and steering gear with rollers B

each main bearing. These castings carry the studs for the cylinders and for the main bearing caps. Thus, the crankshaft is practically secured directly to the cylinders. The advantages of this construction are great additional strength and reduced vibration. The front cover to the engine gearcase is now provided with annular ball bearings for the magneto and pump shafts, so that these gears now are more substantially mounted. This gives increased quiet in the operation of the gears, and promotes durability. Lubrication of the engine gears is also improved by means of an oil lead that enters the lower rear portion of the case, and directs a stream of oil upon the gears whenever the motor is in operation.

Among other changes to be found in the motor the exhaust manifold has been increased in diameter; cylinder flange bosses are reinforced by two webs each; the crankshaft has been enlarged; and better materials have been found and are employed wherever possible. The camshafts now are of chrome nickel steel, heat-treated, instead of plain carbon steel, which makes them more durable and less liable to crystallization. The crankshaft has been increased 1-4 inch in diameter, having been en-

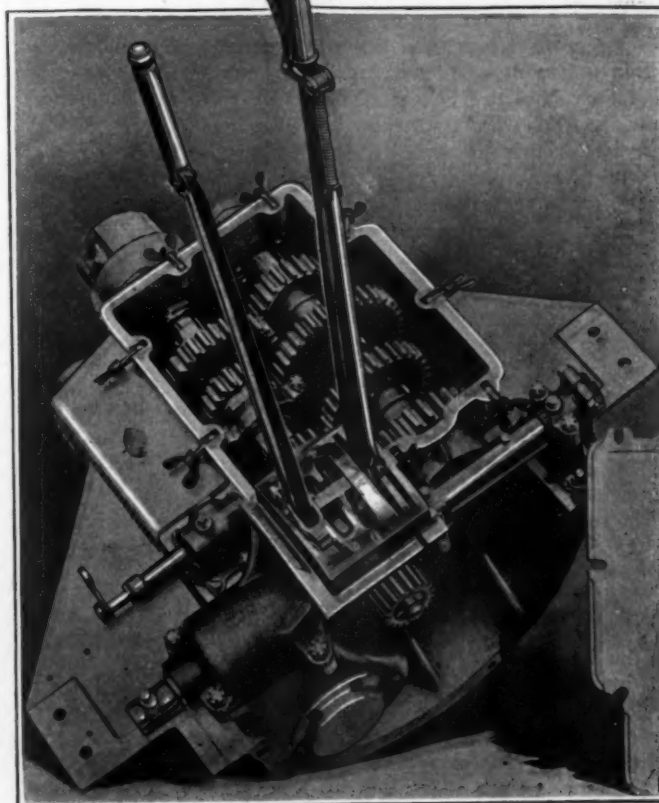


Fig. 11—View of gearset, redesigned for center control

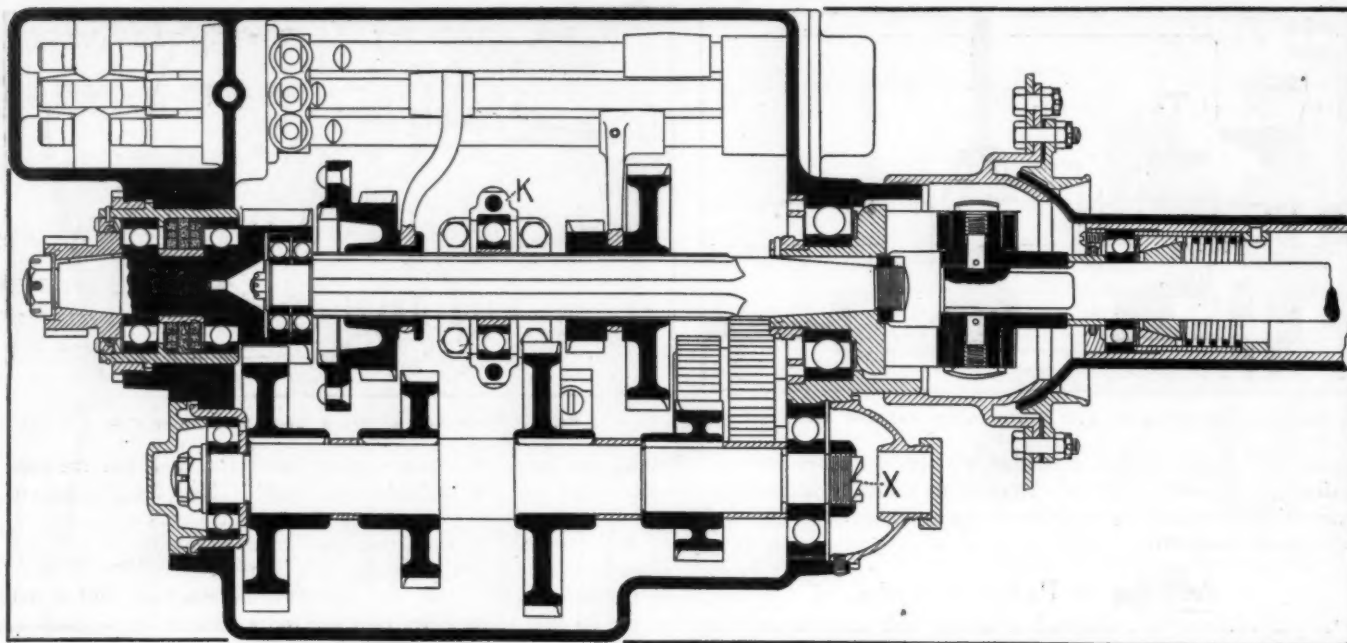


Fig. 12—Section of the gearset of the type-72 Lozier, showing center bearing for the mainshaft

larged from 1 7-8 to 2 1-8 inches; and the webs or cheeks of the crankshaft also are strengthened, being 1-8 inch thicker. Larger ball-bearings also have been provided for the crankshaft.

An interesting feature of the Lozier pistons is the method of arranging two 1-4-inch piston rings in each 1-2-inch groove with their diagonal slots inclined in opposite directions. Each piston has four of these eccentric rings arranged above the piston pin.

The new carburetor used on the Lozier cars this year is a special Rayfield design which has an auxiliary butterfly valve in the hot air intake pipe that may be operated by a lever on the dash to facilitate starting.

The power transmission of the new Lozier is much the same as that used in previous models and consists of a multiple-disk clutch carried within the flywheel, a four-speed selective gearset, a propeller shaft with a single universal joint and housed within a torsion tube; and a floating design of rear axle. In the clutch, hardened and ground steel keys are employed to engage the clutch disks instead of having lugs integral with the periphery of the disks. This provides hard surfaces of contact for the disks, reduces their tendency to drag and wear, and makes for smoother operation. The trunnion ring, or shifting collar, of the clutch now is a steel stamping instead of a drop forging and it has a self-aligning double thrust ball bearing instead of a plain single row ball thrust bearing.

The four-speed gearset has been redesigned in order to carry the change speed and emergency brake lever, Fig. 11. As heretofore the gearset is a unit with the motor. Fig. 1 illustrates this, showing how the arc-shaped front end of the case bolts to the motor. Internally some changes have been made in the gearset. Two stand out prominently. The first is the introduction of a center bearing K for the mainshaft, this bearing adding rigidity to the shaft, Fig. 12.

The second change in the set is fitting a clutch on the rear end of the countershaft by means of which a power air pump can be driven for tire inflation.

#### Changes of the Driving Shaft

In the driving shaft three noteworthy changes are to be found—first, the shaft has been strengthened by the use of an electric chrome vanadium steel instead of nickel steel; second, the rear end bearings have been rendered more efficient by placing the radial ball bearing directly behind the driving pinion, and mounting a new self-aligning thrust bearing in front of it; third, a new self-adjusting stuffing box has been provided at the front end of the propeller shaft to keep grease contained in the uni-

versal joint from running down into the casing around the axle.

In the rear axle practically the same changes have been made in the driving shafts as in the propeller shaft and the differential pinions have been changed from a carbon to a more durable nickel steel. A stronger and lighter differential carrier also has been obtained by making it from a drop forging instead of a steel casting. The rear wheel hubs have been provided with self-adjusting stuffing-boxes to prevent grease from getting out on the brakes; brakes are provided with easier means of adjustment from the rear end of the car. A larger hand wheel is fitted to the outer or service brake; and a self-locking turn-buckle is provided on the connecting link of the emergency brake.

#### Five Styles of Body in the Line

The front axle is fitted with Timken roller bearings instead of adjustable cup-and-cone ball bearings for the wheel hubs, the knuckle pivot bolts are increased from 3-4 to 7-8 inch in diameter, and the bushings have been lengthened so that greater bearing surface and increased strength are obtained. The steering knuckles have been enlarged 1-8 inch in diameter and are made from chrome vanadium instead of nickel steel. The I-beam drop forging also has been changed from nickel to chrome nickel, a change which has effected quite a reduction in weight.

Two new body styles have been added to the line, which now includes the Larchmont, a five-passenger close-coupled straight line design, and the Meadowbrook, a racy two-passenger runabout; and the Lakewood, a five-passenger torpedo style with an extra seat incorporated in the left tonneau door, which practically makes it a six-passenger vehicle (the extra seat folds in out of sight when not in use, but at the same time is very secure and comfortable when arranged for occupancy); the Riverside, a seven-passenger touring car, and the Knickerbocker, a foredoor limousine type.

A new suspension for the acetylene tank is provided in the new car, a hole having been cut in the running board which conforms to the shape of the tank. The tank is located directly under the tool box, the bottom of which is concave. Thus the tank is suspended partially above and partially below the running board; and rests in a pan hinged to the under side of the running board. The tank is readily removable after releasing a catch that secures the pan in place; and cover plates at the ends of the tool box gives easy access to valves or gauge at opposite ends of the tank. On the Lakewood and Briercliff models, which do not carry tool boxes on the running board, a neat aluminum case is provided for the tank above the running board.



## Automobiles for Alaska

Tests Show That, Despite Cold, They Can Be Run Economically

**A**UTOMOBILES could be used to advantage in Alaska, according to a United States Government report, if more attention were given to the construction of roads, especially for winter use.

It has been claimed by some that the automobile could not be successfully used in a cold climate like this because the gasoline would congeal, but local tests in the last two years in all kinds of weather have proved that theory incorrect, and also that they can be used as successfully here as in any other country, provided slight changes be made in the construction of the machine and the roads.

Two years ago a large automobile was used successfully during the winter in Dawson and on suitable country roads. Last winter the White Pass & Yukon Route Company, which operates a 330-mile stage line in winter between White Horse and Dawson, tried an automobile, but it did not prove satisfactory, as the automobile's gauge was much wider than that of the sleds which they were using and the sled track could not be used.

The snowfall in the Yukon Basin between the first of October and the last of April—usually about 2 feet—remains on the ground until melted by the sun in the spring, while in the upper Yukon Valley the temperature varies between — 75 degrees and 90 degrees Fahrenheit, the mean winter temperature is about — 20 degrees. By midwinter the track is worn down in the snow by these narrow-gauge sleds until the banks on either side are 18 to 24 inches high, making it difficult if not impossible for a wider-gauge vehicle of any kind to pass over the road.

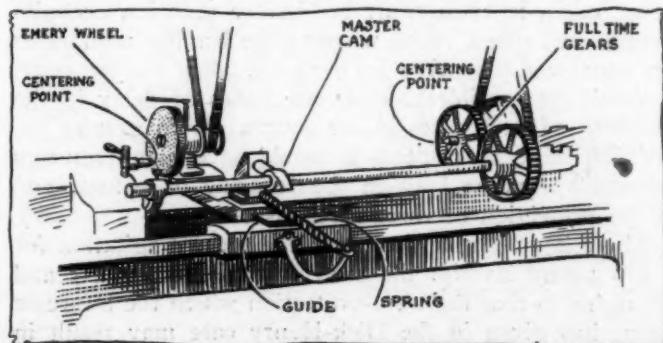
There being no blizzards and little wind in winter in the Yukon Valley, there are no snowdrifts to contend with, except on timberless ridges. The roads usually have low and even grades and, were they of suitable width, would be well suited for motor vehicles. These roads, or trails, were originally made 15 to 24 inches wide to accommodate the dog sled.

If some enterprising motor-vehicle company would construct a motor car of the width of the sled now in use in this country, it could be used to great advantage throughout the whole Yukon Valley for speedy travel in conveying mails, passengers, and freight.

The time now occupied by stage between White Horse and Dawson is 5 to 8 days, with relay stations at 20-mile intervals, while an automobile should make the journey at any time in the year within 2 days.

## A Novel Cam-Grinding Machine

A very interesting tool for the repairman is shown herewith. The tool was made almost entirely from automobile parts by the foreman in the Haynes service plant in New York City. The method of making it is as follows: In the first place an



Cam-grinding machine made from automobile parts

## Calendar of Coming Events

What the Months Ahead Have in Store for the Automobilist

### Shows

- April 15-20.....Birmingham, Ala., Automobile Show, Alabama State Fair Grounds, Birmingham Automobile Dealers' Association.
- April 29-May 4.....Burlington, Vt., Annual Show, State Armory, Burlington Merchants Protective Association.
- May 6-11.....Philadelphia, Show and Carnival, Belmont Race Track, Narberth, Pa., Belmont Motor Club.
- June 17-22.....Milwaukee, Wis., Convention and First Annual Show, National Gas Engine Association.
- June 27-29.....Detroit, Mich., Summer Meeting of the Society of Automobile Engineers.
- July 19-20.....Winnipeg, Man., Canadian Industrial Exhibition.
- Sept. 23-Oct. 3.....New York City, Rubber Show, Grand Central Palace.

### Race Meets, Runs, Hill Climbs, Etc.

- April 15-20.....Birmingham, Ala., Track Races, State Fair Grounds.
- April 27.....Los Angeles, Cal., Speedway meet, Motordrome.
- April 27.....Philadelphia, Pa., Annual Roadability Run, Quaker City Motor Club.
- May 4.....Atlanta, Ga., Hill Climb, Atlanta Automobile and Accessory Association.
- May 4.....Santa Monica, Cal., Annual Road Race, Motor Car Dealers' Association.
- May 14-17.....Chicago, Ill., Commercial Vehicle Test, Chicago Motor Club.
- May 17-18.....Denver, Col., Track Meet, Colorado State Automobile Association.
- May 30.....Indianapolis, Ind., Speedway, 500-mile race.
- May 30.....Salem, N. H., Track Races, Rockingham Park.
- June 8.....Norberth, Pa., Track Races, Quaker City Motor Club.
- June 20.....Algonquin, Ill., Annual Hill-Climb, Chicago Motor Club.
- July 3-5.....Belle Fourche, S. Dak., Second Annual Track Meet.
- July 4.....Petersburg, Ind., Track Meet.
- July 4-5.....Taylor, Tex., Track Meet, Taylor Automobile Club.
- July 4-6.....Old Orchard, Me., Beach Meet, Old Orchard Automobile Association.
- July 5-6.....Tacoma, Wash., Speedway Races.
- July 15.....Milwaukee, Wis., Reliability Run, Wisconsin State Automobile Association.
- Aug. 8-10.....Galveston, Tex., Beach Meet.
- Aug. 23-24.....Elgin, Ill., National Stock Car Races, Chicago Motor Club.
- Sept. 2.....Indianapolis, Ind., Track Races, Speedway.
- Oct. 5.....Philadelphia, Pa., Annual Fairmount Park Road Race, Quaker City Motor Club.
- Oct. 7-11.....Chicago, Ill., Reliability Run, Chicago Motor Club.
- Nov. 6.....Shreveport, La., Track Meet, Shreveport Automobile Club.

### Foreign

- May 26.....Barcelona, Spain, Cup of Spain Road Race, Automobile Club of Catalonia.
- June 15-23.....Vienna, Austria, International Tour, Austrian Automobile Club.
- June 25-26.....Dieppe, France, Grand Prix de France, Automobile Club de France.

ordinary lathe base is taken and two timing gears extracted from the timing set of an old automobile are set up so that the drive is imparted to a small shaft carrying a master cam. The small shaft is the old camshaft of an automobile motor. Several of these camshafts are kept in stock carrying cams of different shapes. The emery wheel with which the grinding is done is carried upon a carriage capable of a reciprocating motion, laterally in respect to the lathe base. The reciprocating motion is imparted to the grinding wheel carriage by the master cam as it turns about on the small shaft. The cam pushes the carriage back against the spring which is shown in the illustration. This spring brings the carriage back as the cam rotates.

The camshaft with the cams to be ground is then mounted between the centering points and the lathe is set in motion. The emery wheel will be held by the spring so that it bears against the cam to be ground. It cannot cut too deeply into the surface of the cam, however, owing to the master cam which guides it in its action. The master cam is capable of being adjusted to grind any one of the cams desired. There is no possibility of any difference in grinding on any two cams as the carriage carrying the grinding wheel is guided very accurately on a V-shaped guide. This is so long that the carriage runs upon it for the full length of its travel.

Different master cams are required for the inlet and exhaust cam grinding operations. Different cam contours could be secured in the same manner as grinding as all that is necessary is to fit a master cam of the desired shape.

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## Sane Patent Law Revision

OWING to the prolific activity in Washington legislative circles since the now celebrated Dick-Henry decision it is a certainty that several modifications of the present patent law will be made in the near future and that several of the over-enthusiastic legislators will overstep the bounds of rational activity unless a tight rein is held on the situation. It is questionable if during the present session of Congress a more favorable opportunity has been offered for legislators to get under the fascinating beams of the political spotlight, and it will be a surprise if the glamor for publicity does not topple over the sound business judgment of some of these representatives.

That improvements in the present patent law are imperative has been demonstrated by the case cited, but under all such conditions the major fact to be kept in mind is not to go too far in the opposite direction; in trying to correct some of the real abuses the enthusiastic legislator may wipe out some of the cardinal merits of the present law. Exceptional care is needed. It is a question containing too many ramifications to be handled by a few glib-tongued politicians, who see on the surface some apparently glaring faults and may strive to alter many of the fundamentals of the present patent law, which is as old as the constitution.

The present situation calls for the most mature consideration and the most deliberate investigation. It calls for a united effort not only on the part of the legislators

but also on the part of the best patent attorneys in the land, the best manufacturing intellect and the highest salesmanship knowledge. So almost incomprehensible are the ramifications of the present investigation that should the mark be overstepped the result could easily become a national calamity insofar as maintaining America's pre-eminent position in the field of inventive genius is concerned.

On the present topic of patent legislation every legislator in Washington has his own conception of what the ideal patent law should be. Some have obtained their conceptions from the under dog, the person who claims to have been discriminated against because of the present law; others have obtained their conceptions from the so-called monopolist who has been described as violating the Sherman anti-trust law as well as many other recognized rules of individual liberty. While these people are exploiting their conceptions of the law before the public the manufacturer is quietly sitting back analyzing the situation and calling upon his corps of patent authorities for advice. There are three big national patent organizations in the country; there are scores of big national organizations representing the hundreds of manufacturing industries, and there are many other organizations that have at heart the maintenance of America's present position in the manufacturing world. The co-operation of all of these is imperative.

Delay is the big objection that the manufacturer has to the present patent law. There is almost unlimited possible delay to the issuance of a patent which in this age, when industries develop from an acorn seed to a mighty oak within a decade, means an enormous disturbing force to the entire industry, the individual manufacturers in the industries and also in many cases to large masses of the consumers. Many of these delays are due to the internal machinery of the patent examiners' office and the modus operandi followed therein. The possibility of a patent not being issued until over a dozen years after its application works a serious injury to a growing industry such as automobile manufacturing, and if legislation can be effected to reduce these grievances it would be to the interest of all the industries in this country. The most prominent patent attorneys in the land believe that with no very great effort amendments can be framed that will accomplish such results, and on the other hand the manufacturers are petitioning for such changes.

Delays in patent activities are not all connected with the issuance of the original patent, many of the most serious ones occurring in the field of patent litigation. In this respect one of the greatest time consumers is the taking of evidence in a large case. This evidence, not being taken in open court but before notaries, occupies months and often years, whereas the leading authorities are convinced that were the evidence taken in open court it would be possible to eliminate years of delay in the handling of such cases in the courts. With greater expedition in these respects it would save manufacturers enormous expense both in the securing of patents and in the protection of them after issuance.

There is one grave danger in the present agitation for a new patent law for the protection of the patentee and his rights in that the ultra-protection which the Supreme Court has given in the Dick-Henry case may result in wiping out the rational protection that is at present af-



forded many patented articles on the market to-day. The present law permits a manufacturer of a patented article to protect it by license against price-cutting by vendors of it. This price protection has been a big asset with many manufacturing industries, particularly in fields that have had to be developed and in the development of which huge sums of money have been expended. In a new industry there are scores of avenues of expenditure that are not met with in more mature ones. In some public sentiment has to be overcome before the patented article reaches that point of production which its intrinsic

merits warrant. Such activities call for enormous outlays, but even in this field the present law is adequate in that it stipulates that where the patented article is a product of national requirement the government has the right to name the selling price in a manner similar to the present power of instituting condemnation proceedings against individual property needed for civic advancement in a municipality. It is to be hoped that whatever new legislation is enacted, it will weigh present industries in the light of modern advancement and that injuries will not be precipitated by a landslide in the opposite direction.

## Bay State Legislators Scored

### Introduce Bills Inimical to Automob- ilists and Have Them Re-Committed Under a Storm of Criticism

BOSTON, MASS., April 13—The Committee on Roads and Bridges of the Massachusetts legislature is getting an overplus of motor legislation this year, and some of the members are sorry that they were ever put on the committee. On Tuesday the committee met in executive session and agreed that the time was ripe to spring its bills and so Senator Frank J. Horgan, the representative of Mayor Fitzgerald on the committee, presented two measures, one for an increase in fees and the other concerning trucks. The bills were assigned for special debate Monday. A couple of newspapers got busy and the *Globe* pointed out that while the Governor and the Mayor recommended an increase that would tax the higher-powered cars more, the bills did just the opposite and that the burden fell upon the little-car owners. This was like dropping a bombshell into the camp of an enemy. The committee had another meeting Thursday and leave was asked to have the bills recommitted to the committee on the plea that there were a few mistakes brought about by misleading figures on the part of the highway commission. As a matter of fact the committee really did not know where it was at, for it had succeeded in hypnotizing the state association to agree to a fee of \$5 for all cars under 10 horsepower and 50 cents per horsepower above that figure. But the committee did not take into consideration that about 70 per cent. of the motorists owned small cars and the increase would fall more heavily upon them, while the few hundred owners of high-powered cars would get off with about the same fee they are now paying.

At the same time the committee reported that the truck bill, if it becomes a law, will put the commercial industry out of business in Massachusetts. The bill first calls for truck fees based upon horsepower the same as the pleasure cars, which is very unfair because the big electric vehicles would only be paying a small fee while the gasoline trucks would be paying a big sum. It also provided that the trucks should not be allowed to run on the highways, if the load and truck combined weighed more than 6 tons, without first getting a special permit from the officials of cities and towns through which it passed except in Greater Boston. In other words it confines the trucks to Boston and vicinity. Then it says the city and town authorities can say on what roads the trucks may run so if a man wanted to order a load of coal, for example, and he lived on a street where the city or town officials did not want to let the truck pass, the coal man would have to employ horses instead of trucks whether he wanted to or not. There is also a speed limit down to 8 and 10 miles and a plan for keeping the load to 800 pounds per inch of tire. In fact, all the bad features brought out at the hearing are embodied in it.

## To Stop Official Joy Rides

### Investigation Shows That Nearly Two- Score Vehicles Are Now in Use in Government Departments

WASHINGTON, D. C., April 15—Responses to the resolution of Senator Bristow, of Kansas, calling for information as to the number of motor vehicles used by the various government departments, his object being to prevent "joy-riding" at public expense, are coming in daily. Some of the responses, which go much into detail, while couched in proper language suggest a note of sarcasm. They enumerate mail wagons, contractors' buggies, broken-down horse-drawn vehicles, etc.

The reports received from the Secretary of the Treasury, the Secretary of the Navy, the Postmaster General, the Secretary of Commerce and Labor, the Commissioners of the District of Columbia, the Smithsonian Institution, the Interstate Commerce Commission, the Attorney General, the Civil Service Commission and the Public Printer show that there are in use locally by them sixteen motor trucks, three electric trucks, ten touring cars, one patrol car, two runabouts and one truck.

### Motorists to Resubmit Light Bill

HARTFORD, CONN., April 13—When the legislature meets here again the motorists will resubmit their bill to have all vehicles using the roads at night carry lights, following the plan now in operation in Massachusetts. Already the various clubs are preparing to get to work on the matter early and the Connecticut State Association will make a determined effort to have the bill passed. The present law calls for all rubber-tired vehicles to use lights and it would simply need to strike out the words "rubber-tired" to make it applicable to every vehicle on the road.

### Owners to Test Mississippi Bill

JACKSON, MISS., April 15—The constitutionality of the new automobile tax in Mississippi is to be tested. A number of owners have retained the former attorney general of the state, James R. McDowell, and action is to be brought at once.

## INSURANCE

"Automobile and Garage Insurance" is the subject of a series of two articles that will appear in THE AUTOMOBILE for April 25 and May 2. This topic, of absorbing interest to the owners of automobiles, garages and repair shops, will be treated in a practical manner, and the entire insurance situation analyzed into its simplest form so far as different risks, rates, riders, etc., are concerned.

## Two Victories for Good Roads

### Committee Agrees to Report Underwood Resolution—Shackleford Bill Favorably Reported

WASHINGTON, D. C., April 12—Signal victories were won this week by the good roads advocates who have been endeavoring for years to get Congress to take some decisive action regarding national highways. The first victory came when the House rules committee heard representatives of various good roads associations advocate a favorable report on the Underwood joint resolution creating a committee of Congress to investigate the building of post roads in the United States. The pleas made were effective enough to prompt the committee to agree to report the resolution, this action being taken immediately following the close of the hearing. Congressman Henry, chairman of the committee, brought the matter up on the floor of the House the following day, but an objection being raised, the matter went over until next week. As the resolution is fathered by Congressman Underwood, the majority floor leader, it is sure to receive favorable action when it comes to a vote.

The second victory was the favorable report made on the Shackleford bill by the House committee on agriculture. The terms of this bill were given in a recent issue of THE AUTOMOBILE.

The basic principle of this bill, which is the joint work of twenty-eight Congressmen who introduced an equal number of good roads bills, is compensation by the federal government for the use of the roads traveled by the mail carriers in the star route and rural delivery service. In its report the committee sets forth that the constitutional power of the federal government to construct or promote works of internal improvement has been debated from the foundation of the republic. Heretofore the question of federal aid to the construction or maintenance of highways has been considered from the point of view either of appropriations in aid of the construction of such works as are authorized by the states and are national in their character or of appropriations for the direct construction of roads and canals in order to "facilitate, promote and give security to internal commerce among the several states, and to render more easy and less expensive the means and provisions for the common defense." The chief obstacle thus far in the path of appropriations in aid of road making or of road maintenance within the several states has been the indisposition on the part of the states to agree to any measure of federal control or authority over their roads. No practicable scheme of joint operations using in part federal and in part state money has been or is likely to be devised. One sole and responsible agency, whether state or federal, must do the work, and all the funds appropriated for this work, whether county, state or national, should be turned over to this agency. This is what the Shackleford bill proposes to do with respect to federal payments in compensation for use of the state roads.

### Pay Railroads, Why Not States?

The public is familiar with the system in vogue in compensating the railroads for the transportation of mail matter. The aggregate of these payments in the last fiscal year amounted to about \$51,000,000. Thousands of miles of exclusively state roads are in use by rural and star route carriers. At present these roads are maintained by the states, though the federal government enjoys their free and uninterrupted use for its mail service. No reason is perceived why the government should not pay for the use of these highways.

The improved roads, totaling 118,000 miles, may be considered as ready to comply with the requirements of the bill and receive compensation, but the aggregate payments on this account will be only \$2,535,000 a year. A very large proportion of

the mileage of dirt roads will require much work at the hands of the local authorities before any claim for compensation can be presented. In proportion as the mileage of mail routes increases and dirt roads are improved the payments under the bill will increase, but the increase will be a legitimate and natural evolution. The inevitable effect of this measure will be not only an immediate improvement of the roads of all states, but a stimulus to road construction in every direction.

### Commercial Club for Good Roads

OMAHA, NEB., April 15—The Commercial Club of Omaha has organized a good roads committee, and is preparing to push actively for the improvement of the roads in Nebraska this year. Recently a meeting of this committee was held in connection with committees from the Omaha Motor Club and the Omaha Automobile Club, and the three will work together for road improvement.

Some of the most active work will be done by the committee on legislation. The next legislature meets in January, and it is hoped to pass a law providing for a state commission in charge of highways or for a state highway engineer.

### Bay State Removes Jersey Ban

BOSTON, MASS., April 13—New Jersey motorists may now tour in Massachusetts without fear of prosecution by officials of the Bay State. The Massachusetts Highway Commission secured a copy of the New Jersey law and after going over its provisions and finding that the Bay State motorists could tour in New Jersey promptly passed a regulation raising the ban against the Jersey tourists that has been in effect for a couple of years. However, while Massachusetts motorists may tour 15 days in New Jersey the motorists from that state are allowed only 10 days touring in any one year in the Bay State, which shows the need of an adequate reciprocity clause for all states.

### Taxi Independents Fight Regulars

NEW ORLEANS, LA., April 15—In order to combat discrimination as to position at the more important cab stands the Livery Automobile Owners' Association has been formed. The association also will furnish the funds for the defense of two independent owners arrested recently for taking positions in the street in front of the St. Charles Hotel. The movement has been initiated by a reduction of 20 per cent. in all fares. It is stated that this is the amount that the favored owners have to pay the owners of the buildings at exclusive stands. Each side in the controversy has retained the most efficient legal talent and much popular interest is being taken in the case.

### Dealers Will Not Accept Used Cars

LYNN, MASS., April 15—Beginning today a new rule went into effect regarding second-hand cars whereby the Lynn Automobile Dealers' Association members will not accept second-hand cars as part payment for new machines. The trading-in business had been under discussion for some time and at the last meeting of the association April 15 was set as the date upon which the members should make the announcement and begin the new order of things. The dealers also discussed the cut-price rates in accessories and this feature will be taken up later and put on a more business like basis.

### Automobile Parade in Detroit

DETROIT, MICH., April 13—The Detroit Board of Commerce is planning the greatest motor car pageant in history, to take place in connection with the celebration of Cadillac, next summer. The fête is designed as an annual feature—a sort of mardi-gras—and commemorates the arrival of Cadillac, founder of the city.



The event will be essentially a water festival but the city's prominence in motoring will be given recognition on one day, according to plans now in progress. It is planned to gather all the motor cars owned in the city, at some point out North Woodward avenue. These cars will be reinforced by consignments of new cars from the factories and an effort will be made to stir up competition for numerical representation. The cars will be massed the entire width of the street, which will be cleared for the purpose, and the lines will be kept as closely as possible together. In this way it is believed the visitors to the city will be given an opportunity to see within a short time more motor cars than have ever been gathered for any purpose whatever.

In addition to the parade it is planned to have the various factories enter floats of historical and ornamental nature.

### M. C. A. Warns Against Outlaws

DETROIT, MICH., April 15—President Howard E. Coffin, of the Manufacturers' Contest Association, has inaugurated a movement among the members of the association, tending to the discouragement of unsanctioned race meetings and other competitive events. He has made the subject one for a circular letter in which he urges other manufacturers to join in attempting to dissuade dealers from entering events not formally approved by the American Automobile Association.

Mr. Coffin says that the situation in California is particularly bad at present and asks the members to wire their Coast representatives to discourage competition at a proposed outlaw meeting at Fresno. A similar communication is said to have gone out from President William F. Metzger, president of the National Association of Automobile Manufacturers.

In his letter Mr. Coffin observes: "We all, of course, realize, if it is permitted that racing events be conducted throughout the country by outlaw promoters who, because of the absence of Contest Board sanctions are not amenable to jurisdiction and rules of that Board, that we shall soon find ourselves in the same chaotic and unsavory state which disgusted both the trade and the public 3 years ago, prior to the formation of the Manufacturers' Contest Association."

Several of the local factories having representatives in Fresno have wired them not to take part in the meeting, and it is understood that similar action has been taken by manufacturers, to a certain extent, outside this city.

### Dix Signs Murtaugh Road Bill

ALBANY, April 16—Referring back to the people of New York the proposed bond issue of \$50,000,000 to be used in the construction of improved highways, Governor Dix signed the Murtaugh bill Saturday. The referendum will be presented to the public at the election in November, and if it is adopted, there will be \$100,000,000 available for road improvement under the state laws.

Such a sum of money has never been set aside for road improvements in any state since the era of good roads began, but the action of New York is in perfect accord with the policy inaugurated 5 years ago.

The appropriation already provided for roads by the state amounts to \$50,000,000, the expenditure of which will be spread over several years, according to present plans.

### Testing for Leak in Acetylene Line

In the issue of THE AUTOMOBILE for April 4, readers were advised to test their acetylene lines for leaks by means of a lighted match. This was dangerous advice for those who are not familiar with the action of acetylene under all circumstances. A safer way of testing would be to put oil along the piping and joints in the same manner as in testing for a cylinder leak. The oil will bubble wherever there is a leak. Leaks may also be found by smelling along the piping or by the use of leak testers such as that marketed by the Prest-O-Lite company.

## Automobiles in National Parks

### A Review of Some of the Regulations in Force at the Government's Pleasure Grounds

AUTOMOBILES are now admitted to the Mount Rainier National Park in Washington, General Grant National Park in California and the Crater Lake National Park in Oregon under regulations formulated in 1910 by the Department of the Interior.

The Wind Cave National Park in South Dakota and the Platt National Park in Oklahoma are also open to automobilists, although no special rules governing the use of machines within them have been formulated owing to the character and width of the roads. The general rules for the government of these parks apply, however.

Since it is held by the Interior Department that the use of automobiles in the Yellowstone National Park would be dangerous to persons passing over the roads on horseback or in horse-drawn vehicles, motor-driven vehicles are not allowed in this reservation. At the present time there are no plans under consideration by the Department as to the altering of present roads or the building of new ones with a view of permitting the use of automobiles within the Park.

The automobile regulations which are in force in the Mount Rainier, General Grant and Crater Lake parks are practically alike, except as to fees and the hours during which the parks are open to machines. To drive a car in either of them a written permit must be obtained from the superintendent. Application for this permit must show the name of the owner of the automobile, the name of the driver, the number of the car and the inclusive dates for which the permit is desired, not to exceed a year. The Mount Rainier Park rules exact the payment of a \$5 fee regardless of the extent of time for which the permit is granted, while it is possible to get permission for a single round trip in either of the other two parks for \$1. The \$5 fee, which makes the permit good for any period up to 1 year, is also in force in them.

The times for admission in the mornings vary from 6:30 to 10:30 o'clock, while the regulations for all three make it necessary to leave the reservation by 6:30 p. m. When teams approach, automobiles are required to take positions on the outer edges of the roadways, regardless of the direction in which they are going, and care must be taken to give the teams plenty of room in the middle of the thoroughfare. The machines must stop and remain at rest until the teams have passed, or until it is certain that the teams are perfectly safe.

Speed is limited to 6 miles an hour except on straight stretches where there is a clear view of the road ahead and where no teams are in sight. In such cases it may be increased to that indicated on the sign boards, but it must not exceed 15 miles an hour in any event.

Signal with the horn is required at or near every bend. Teams have the right of way, and the rules provide that when necessary to the safety of the teams automobiles must be backed or otherwise handled to afford passage for the horse vehicles.

Violation of the automobile or general park rules incurs the revocation of the permit, makes the owner of the car liable for any damages caused by disregard of the rules, ejectment from the reservations and refusal of the issue of a new permit without prior sanction in writing from the Secretary of the Interior.

### Venezuela Lowers Automobile Duty

CARACAS, VENEZUELA, March 30—Automobiles and accessories have been listed apart from general vehicles, resulting in a slight decrease in the amount of duty. Motor cars and accessories, provided the sundries are for use on the machine, now pay a fraction under 5 cents, American currency, per kilo.

# News of the Week Condensed



Goodyear tires displayed in the window of the Hardware & Supply Company, Akron, O.

**RUBBER Tire Window Display**—Various rubber concerns in Akron, O., have arranged to have displays, and the tire concerns have vied in a friendly way to have the best showing. The accompanying picture shows the product of the Goodyear Tire & Rubber Company displayed in the window of the Hardware & Supply Company, Akron, O.

**Ellis in New Quarters**—Herbert Ellis, Cole agent at Lawrence, Mass., has moved into new quarters at 298 Jackson street.

**Smitton Moves**—E. C. Smitton, agent for the Cole at Sacramento, Cal., has moved to 1308 K street, that city.

**Everitt in New Hands**—The name of the W. Wayne Davis Company, Philadelphia, has been changed to the Hunter-James Company.

**Cole Agent Changes Name**—The Economy Auto Company, Cole agent at Oskaloosa, Ia., has changed its name to the W. M. Novak Auto Company.

**Stearns Car in Foreign Lands**—The F. B. Stearns Company, Cleveland, O., has closed a deal whereby the Stearns-Knight car will be represented in New Zealand and the South Sea Islands.

**Boy Secures License**—Passing the necessary examinations, a chauffeur's license was issued recently to P. B. Derr, 14 years old, Philadelphia. He is the youngest licensed chauffeur in Philadelphia.

**Autocar Moves Houses**—M. S. Bulkley, Los Angeles, Cal., agent for the Autocar, has recently put one of this make in the house-moving business, and it does the work in much less time than by the use of horses.

**Property Rises in Value**—As indicative of the rise in value of North Broad street property in Philadelphia, due to the increasing demand for sites by automobile concerns, 207-209 North Broad street were recently sold for \$150,000.

**Croy Goes to Woods**—H. L. Croy, assistant engineer and designer of the Inter-State Automobile Company, Muncie, Ind., has resigned to accept the position of assistant chief engineer of the Woods Motor Vehicle Company, Chicago, Ill.

**Milwaukee Clubhouse to Open**—The country clubhouse of the Milwaukee Automobile Club on the famous Blue Mound road, at Cottrell avenue, Milwaukee, will be reopened for its second season on April 20 with a big entertainment.

**Moon Leases Building**—The first floor and basement of 1927-1929 Market street have been leased to the Moon Motor Car Company of Philadelphia, which will occupy the site after extensive repairs and alterations have been completed.

**Thompson Moves His Salesroom**—W. B. Thompson, owner of the Chelsea Garage and Cole agent in Atlantic City, N. J., has moved into his new salesroom at 3331 Atlantic avenue. He will retain his service department at the old site, 22 North California avenue.

**Seeking Rhode Island Plant**—George Wood, Detroit, Mich., has been visiting Pawtucket, R. I., recently looking over the available sites for erecting an automobile plant as an Eastern branch of one of the big Detroit companies.

**Locomobile Branch to Build**—Work has been started on the wrecking of the old Peel residence, at the corner of Merritts avenue and Peachtree street, Atlanta, Ga., and as soon as the ground is cleared a building will be erected there for the Southern branch of the Locomobile company.

**Baker Branch in Detroit**—The Baker Electric Company of Michigan was officially incorporated April 3. The officials of this new factory branch of the Baker Company, which will formally open some time between May 1 to 10, on Woodward avenue, Detroit, are J. Caldwell Walker, of Detroit, president; R. C. Norton, Cleveland, vice-president; Wm. C. Burnett, Detroit, secretary and treasurer.

**Willys Entertains Employees**—Wednesday, April 10, was a big day with the employees of the Willys-Overland Company and its allied institutions, the Kinsey Manufacturing Company and the Warner Company. This was the occasion of the opening of the baseball season at Swayne field and the employees of the three concerns were given a half-holiday at the expense of the company and attended the ball game in a body as the guests of President J. N. Willys.



**Cincinnati Club to Help**—The board of governors of the Automobile Club of Cincinnati, O., have voted to lend their assistance to the project of a boulevard from Madisonville to Clifton, O.

**Hearse Makers Favor Motors**—At the recent annual meeting of the Hearse Builders' Association of America in Columbus, O., preference was freely expressed for automobiles as against horse-drawn vehicles.

**Rogers Goes to the Coast**—A. J. Rogers, who has been connected with the sales department of the Remy Electric Company, has been transferred to the San Francisco branch in the capacity of branch manager.

**Smith and Field Break**—The partnership heretofore existing between C. M. Smith and W. S. Field in the firm known as the Broadway Auto Company, Scottsdale, Pa., is dissolved, C. M. Smith retiring from the firm.

**Texas Is Coming Up**—During the month of March sixty-three new automobiles and motorcycles were licensed in the city of Houston and Harris County, Tex. There are now 2,311 licensed power-driven vehicles in the county.

**Cataract Opens Boston Branch**—Stephen Richards has been placed in charge of the newly opened salesrooms of the Cataract Tire Company at 1002 Boylston street, Boston, Mass. This office will be the distribution branch for New England.

**Willard Moves Offices**—The Willard Storage Battery Company, of Cleveland, Ohio, has moved its executive offices to 5716 Euclid avenue. Ground has been broken for a factory extension which will add 25,000 feet to the company's present facilities.

**Runs Tire Mileage Contest**—The new Brooklyn branch of the Fisk Rubber Company of New York has offered a prize to the Long Island automobilist making the highest mileage average on Fisk tires up to and including December 1 of this year. The cars report twice a month for inspection.

**Opens New Plating Plant**—The Columbus Auto Brass Company, Columbus, O., has opened a new department, to be known as the plating plant. The department is well equipped and the company specializes in replating automobile lamps, radiators, fenders, windshields and other equipment.

**Garage Men and Dealers Organize**—Garage keepers and automobile dealers at Racine, Wis., are planning the organization of an association for promoting their mutual interests and for self-protection. A fight will be waged against the so-called curb dealer who purchases a car to get the agency and then interferes with the activity of legitimate agents.

**Hoosiers Entertain Blind Tots**—The first annual outing of children of the Indianapolis, Ind., Orphan Home and Indiana School for the Blind, by the Hoosier Motor

Club, took place last Saturday afternoon. Members of the club provided about fifty cars and the youngsters and their attendants were taken for a ride in the country in the vicinity of the city.

**Detroit Ships Cars by Boat**—The first boat operated between Detroit, Mich., and Toledo, O., on Lake Erie this season arrived last Saturday with a load of Ford cars consigned to the Roberts-Toledo Auto Company. The load comprised about forty-five cars and as the regular navigation season does not open until April 20 special insurance was necessary to cover the cars while in transit. A second boat load of automobiles from Detroit is expected soon.

**Syracuse Air-Cooled Cars**—Syracuse, N. Y., is practically the home of the air-cooled car industry, three manufacturers producing this type of car, the H. H. Franklin Manufacturing Company building both pleasure and commercial cars, while the Chase Motor Truck and the Sanford-Herbert Company confine their efforts to commercial cars. The H. A. Moyer Company is the only automobile manufacturer in Syracuse building the water-cooled type solely.

**In Jersey's New Laws**—The new automobile laws now in force in New Jersey provide, among other things, that exhaust pipes must be directed parallel to the ground or deflected slightly upward, to prevent harm to the state roads. The laws also permit the use of tire chains except when the roads are dry and the use of chains is unnecessary. The use of muffler cut-outs is prohibited in cities and towns and within 200 feet of any horse-drawn vehicle.

**School Officials Abandon Horses**—Bids will soon be asked by the Indianapolis, Ind., board of school commissioners for a seven-passenger motor car for the use of the business director of schools and superintendent of buildings and grounds. The board already has a seven-passenger car in service, recently purchased a 3-ton truck for the school supply department and is planning to replace all horse-drawn equipment with motor cars at the earliest possible date.

**Any Color but Red**—Because a red automobile for carrying money from the city treasury might assist highwaymen in singling out the machine from others and make it possible for them to commit a holdup and avoid the police car carrying plain clothes men, the special committee appointed by the Columbus, O., council to select the color and design for painting municipal automobiles recommended to the council that, with the exceptions of these two departments, the machines be painted red. The resolution was referred to the judiciary committee, which will make a report.



Portion of a battery of General Motors trucks in the service of the Cudahy Company



Adams truck used for hauling nitro-glycerine

**Reynolds a Sales Manager**—W. F. Reynolds has been appointed sales manager of the Lippard-Stewart Motor Car Company, Buffalo, N. Y.

**Peck Joins Metzger**—T. A. Peck has been appointed manager of the technical department of the Metzger Motor Car Company, Detroit, Mich.

**International's New Baltimore Offices**—The new five-story building of the International Motor Company in Baltimore, Md., has been opened.

**Philadelphia Club's New Home**—Irwin & Leighton have been awarded the contract for a clubhouse and garage for the Automobile Club of Philadelphia.

**Penniman Goes to Portland**—I. W. Penniman has been promoted to the position of manager of the Portland, Me., branch of the Goodyear Tire & Rubber Company.

**Savoy to Manage in Boston**—W. T. Savoy, formerly general branch manager for the Autocar Company, has been sent to Boston, Mass., as manager of the branch there.

**Johnson Garford's Chief Engineer**—W. G. Johnson has been appointed chief engineer of the Garford Company, Elyria, O., succeeding C. A. Neracher, who resigned recently.

**Hemming Heads Thomas Branch**—G. S. Hemming is now general office and sales manager of the Philadelphia branch of the E. R. Thomas Motor Car Company, Buffalo, N. Y.

**New Department Managers**—Earl J. Hoffman and Robert W. Maloney have been added to the force of the Neustadt Automobile & Supply Company, St. Louis, Mo., as department managers.

**Newark Firm Dissolves**—The partnership heretofore existing between J. E. Sigler and C. M. Hare, Newark, O., under the firm name and style of the Licking Motor Car Company or Sigler & Hare, has been dissolved.

**Organize Automobile Club**—The automobile owners of Alexandria, Va., have organized the Alexandria Automobile Association with Dr. Edward A. Groman, president; John D. Narmoyl, treasurer, and R. N. Green, secretary.

**Stevens-Duryea Erects Signs**—In an endeavor to warn motorists of the bad conditions of the roads between Chicopee Falls and Springfield, Mass., the Stevens-Duryea Company has had some big signs painted and has posted them at intersections.

**Binghamton Buys Police Patrol**—The city of Binghamton, N. Y., has purchased a Packard police patrol like that used in Indianapolis, Ind., and in Detroit, Mich. The vehicle has a capacity of 10 passengers and a speed of 50 to 60 miles an hour.

**Remy to Entertain Wolverines**—More than 150 members of the Wolverine Automobile Club, Detroit, Mich., on their way to the big Indianapolis race, will be the guests of the Remy Electric Company, Anderson, Ind., at a noonday luncheon, May 29.

**Skeeters Can Tour Massachusetts**—Following the adoption of reciprocity by New Jersey the Massachusetts State Highway Commission has taken down the bar against Jersey tourists which prevented their touring in the Bay State without registering their cars.

**Kelly-Racine Increases Capital**—The Kelly-Racine Rubber Company, Racine, Wis., has added \$150,000 to its capital to provide for expansion made necessary by the volume of orders now on hand. The annual sales output has grown to \$1,200,000 in the 2 years that the company has been operating.

**Auburn to Investigate Now**—The Common Council of Auburn, N. Y., has defeated a resolution authorizing the purchase of automobile apparatus to replace horse-drawn vehicles for the purpose of making further investigation among makes other than that at first proposed. The resolution limited the cost to \$22,000.

**Bosch Hangs Up Prize Money**—In accordance with its usual custom, the Bosch Magneto Company will distribute among the successful drivers in the Indianapolis Sweepstakes the sum of \$1,000—\$500 to the winner, \$300 to the second and \$200 to the third—the only condition being that the cars they drive shall be equipped with the company's magneto. For the Santa Monica races it has offered, under similar conditions, the sum of \$800, to be divided between the drivers of the first, second and third cars in each of the three races on the program.

**Truck Carries Nitro-Glycerine**—What is believed to be the only truck in a service of its kind was recently delivered to the Independent Torpedo Company by the Adams Brothers Company, Findlay, O. It is used for the transportation of nitro-glycerine. The regular body is lined with a pan, in which rests a special body, fitted with compartments for holding the cans. This special or inner body is also fitted with a pan, which guards against any of the explosive getting into the running gears in case a can should leak. This body has a capacity of 720 quarts of nitro-glycerine.

## Automobile Incorporations

### AUTOMOBILES AND PARTS

ALBANY, N. Y.—Kingsbury-Leahy Company, Inc.; capital, \$40,000; to manufacture automobiles and carriages. Incorporators: Edward W. Leahy, S. Kingsbury, Sara M. Kingsbury.

ARLINGTON, MASS.—Wetherbee Brothers Company; capital, \$20,000; to manufacture automobiles. Incorporators: Ivers L. Wetherbee, Clarence A. Wetherbee.

AUGUSTA, ME.—International Trolley Mobile Company; capital, \$1,000,000; to operate a passenger service. Incorporators: Robert E. Ahern, Charles H. Gilmore, Dennis A. Meahern, Charles W. Noyes, J. Ralph Wellman.

BIDDEFORD, ME.—Etchells Auto Company; capital, \$10,000; to deal in automobiles. Incorporators: Joseph Etchells, Charles V. Tanner, Arthur L. Roberts.

BOSTON, MASS.—Williams Auto Company; capital, \$2,500. Incorporators: William T. Hanley, James F. Hanley, Frederick W. Ryan.

BRIDGEPORT, CONN.—New England Auto Supply & Exchange; to provide automobile supplies for automobilists at cost. Incorporators: George W. Jackson, A. B. Hicks.

BROOKLYN, N. Y.—T. F. P. Company; capital, \$1,000; to deal in automobiles, supplies and accessories. Incorporators: E. Mulder, F. W. Olmstead, John R. Mulder.

CHICAGO, ILL.—Chicago Automobile Trade Association; to advance the interests of the trade. Incorporators: N. H. Van Sicken, Sr., Harry N. Fowler, Henry Paulman.

CLEVELAND, O.—B. M. O. Truck Company; capital, \$5,000; to manufacture automobiles. Incorporators: R. A. Wilbur, A. S. Dole, M. M. Coyne, C. C. Wise, C. S. Wachner.

DETROIT, MICH.—Suburban Motor Car Company; capital, \$500,000; to manufacture automobiles. Incorporator: William H. Lamkin.

DOVER, DEL.—Charter Automobile Company; capital, \$750,000; to manufacture automobiles and parts. Incorporators: Clinton R. Voutz, William Edgar Byrd, George H. Reinhart.

EVANSVILLE, IND.—Victor Automobile Company; capital, \$8,000; to manufacture automobile parts. Incorporators: P. B. Fellwock, W. E. Fellwock, J. F. Fellwock, H. F. Nolte.

HARTFORD, CONN.—Stoddard-Dayton Motor Company of Hartford; to deal in automobiles. Incorporators: D. King, Wallace L. Hale, Wells H. Wetherall.

NEW YORK CITY—Auto Import & Specialty Company; capital, \$15,000; to deal in automobiles. Incorporators: Leo Kahn, Edwin P. Weiss, Hans Gurliitt.

NEW YORK CITY—Auto Transportation & Sales Company; capital, \$1,000; to deal in automobiles and conduct a freight transportation business. Incorporators: Edward E. Manning, William Landseadel, J. Martin Berk.

NEW YORK CITY—Long Island Auto Truck Company; capital, \$3,000; to sell motor trucks and conduct a freight transportation business. Incorporators: William L. Woodwill, Peter J. Fisher, Wilson J. Backman.

PORTLAND, ME.—Taxicab Service Corporation; to conduct a taxicab business. Incorporators: George C. Whitmore, William D. Sawyer, Elton H. Thompson.

WORCESTER, MASS.—Worcester Auto Parts Company; capital, \$10,000; to make automobile parts. Incorporators: James N. Heald, Cyrus N. Cowan, John A. Doane.



**Erecting New Salesroom**—The Missouri Motor Car Company of St. Louis is erecting a new salesroom at 3005-7 Locust street, St. Louis, Mo.

**Trucks Are Selling Well**—Over fifty trucks of capacity greater than 1 ton have been sold by the truck companies in St. Louis, Mo., since January 1.

**New Club Is Growing**—Nearly 100 members have already signed the charter roll of the newly organized Twin City Automobile Club of Neenah and Menasha, Wis.

**Trucks for Porto Rico**—The International Motor Company has sold an instalment of thirty trucks to the Porto Rico Motor Company for transportation use on the island.

**Students Inspect Rambler Plant**—Fifty students of the engineering college of Northwestern University, Evanston, Ill., spent 2 days last week in inspecting the Rambler factory at Kenosha, Wis.

**Repair Shop Is Opened**—A. F. Hayman & Son, Findlay, O., have opened an automobile repair shop and installed a light and power plant. The mechanical department will be under the management of Burt Gribbell and Cloyd Hayman.

**Compiles Maryland Licenses**—William F. Hampe, assistant sporting editor of *The Sun*, Baltimore, Md., has compiled a list of the holders of automobile licenses for 1912 in Maryland. It is neatly bound and is of convenient pocket size.

**From Winton to Studebaker**—William McGlashan, for many years designing engineer for the Winton Motor Car Company, has resigned to accept the position of chief engineer of the Studebaker Corporation at the South Bend, Ind., factory.

**New Cole Automobile Company**—The Bowler Motor Car Company, San Diego, Cal., Cole agent, has been completely re-

organized and in the future will be known as the Cole Automobile Company. A new salesroom and service station are being constructed.

**Designing New Henderson Car**—Chester S. Ricker, of the Henderson Motor Car Company, Indianapolis, Ind., has taken offices in the Board of Trade Building. There he and his draftsmen will continue to formulate plans that will develop the Henderson car.

**Syracuse Club After Cut-Outs**—Secretary Forman Wilkinson, of the Automobile Club, of Syracuse, N. Y., announces that the club will start a campaign against the use of muffler cut-outs in Syracuse. A city ordinance prohibits the custom, but it has not been enforced.

**Cook & Stoddard to Move**—The Cook & Stoddard Company, Washington, D. C., will move into new quarters at 1138 Connecticut avenue, N. W., about May 1. Improvements to the building have been progressing for 2 months and the result will be a finely finished structure.

**Adds Wholesale Accessory Department**—The Bolton Auto Company, Saginaw, Mich., distributor for the Studebaker Corporation and Hudson Motor Car Company for northern Michigan, has considerably increased its floor space and has added a new wholesale accessory department.

**Racine Buys and Wants More**—The city of Racine, Wis., has purchased a Buick truck for the use of the municipal water works department. The Common Council is considering the purchase of one or two light cars for departmental use, but has not announced the exact purpose for which they will be required.

**Frost Has Charge in New York**—A. D. Frost has been appointed manager of the recently established New York City branch of the Alco. In his new capacity Mr. Frost will also be in charge of the service building on Jackson avenue, Long Island City. F. A. Crooks has been named as assistant manager of the branch.

**Engine Show at Convention**—A comprehensive exhibit of gas and gasoline engines will be conducted in the Auditorium at Milwaukee, Wis., during the annual convention of the National Gas Engine Association from June 17 to 22. It will be the first engine show to be conducted in connection with these conventions. O. C. Parker, of LaCrosse, Wis., is president of the association.

**Moves Made in Portland**—Many of the automobile dealers of Portland, Ore., have moved recently. The Portland Motor Company is now in its new location at Twenty-third and Washington streets. The United Auto Company has moved into its new home at Sixteenth and Alder streets, and the Becker Automobile Company to Fourteenth and Everett streets.

**Offers Y. M. C. A. School Course**—Frank P. Speare, educational director of the Boston Y. M. C. A., noting Mayor Fitzgerald's statement that better facilities should be offered chauffeurs in the city employ to get more knowledge of motor vehicles, has offered the Mayor the co-operation of his automobile school for teaching the municipal chauffeurs to operate their cars efficiently and economically.

## Automobile Incorporations

**YONKERS, N. Y.**—Hudson River Automobile Company; capital, \$500; to deal in automobiles. Incorporators: Charles Wieland, Richard Jeggle, Carl Schmied.

**YONKERS, N. Y.**—Park Hill Auto Company; capital, \$15,000; to deal in automobiles. Incorporators: Eric Drewitz, Emil Drewitz, Paul T. Ellenbogen.

### GARAGES AND ACCESSORIES

**BOSTON, MASS.**—Cut Price Automobile Supply Company; capital, \$10,000; to deal in supplies. Incorporators: Louis S. Rothenberg, Israel J. Rothenberg, Henry L. Rothenberg.

**BOSTON, MASS.**—Punctureless Tire Company of Massachusetts; capital, \$15,000; to manufacture a puncture-proof tire. Incorporators: William E. Riddell, J. Hiram Smith, Frank H. Jenkins.

**BUFFALO, N. Y.**—South Buffalo Garage, Inc.; capital, \$10,000; to do a garage and supply business. Incorporators: William F. Coatsworth, Leon R. Jenkins, Mary L. Coatsworth.

**DETROIT, MICH.**—Wolverine Tire Company; capital, \$25,000; to manufacture and deal in automobile tires. Incorporators: Ernest R. Robinson, Perry G. Robinson, Henry H. Smith.

**DOVER, DEL.**—Motor Vehicle Speed Alarm Company; capital, \$500,000; to manufacture and deal in all kinds of automobile accessories. Incorporators: H. O. Coughlan, Joseph F. Curtin.

**ERIE, PA.**—Erie Taxicab Company; capital, \$6,000; to do a general taxicab business.

**MILWAUKEE, WIS.**—Reliance Auto Repair Company; capital, \$5,000; to conduct a garage and repair shop. Incorporators: Frederick F. Giese, Albert E. Brandenburg, Robert N. Sessions.

**NEW YORK CITY**—Auto Truck Storage & Exchange Company; capital, \$20,000; to deal in freight automobiles and store them. Incorporators: Henry J. Benjamin, Louis H. Moos, Leopold O. Rothschild.

**NEW YORK CITY**—Charles H. Tucker Company; capital, \$100,000; to deal in automobile supplies and accessories. Incorporators: C. H. Tucker, E. R. Wood, H. W. Solmons.

**NEW YORK CITY**—Eclipse Rubber & Tire Company; capital, \$50,000; to manufacture tires, rubber goods, etc. Incorporators: S. I. Schwartz, H. A. Bloomberg, S. H. Silverman.

**NEW YORK CITY**—National Tire Company; capital, \$50,000; to manufacture automobile tires and rubber goods. Incorporators: H. Davies, T. H. Hopkirk, I. V. Weishrod.

**NEW YORK CITY**—Ohio Tire Company; capital, \$500; to manufacture tires and other accessories. Incorporators: Samuel Kessel, Fanny Karpowitz, Max Karpowitz.

**ROSLYN, N. Y.**—Rosllyn Garage, Remsel & Hewlett, Inc.; capital, \$15,000; to conduct a garage and deal in supplies. Incorporators: Samuel L. Hewlett, John F. Remsen, Nora H. Remsen.

**WILMINGTON, DEL.**—Sanitary Service Company; capital, \$10,000; to deal in automobile accessories.

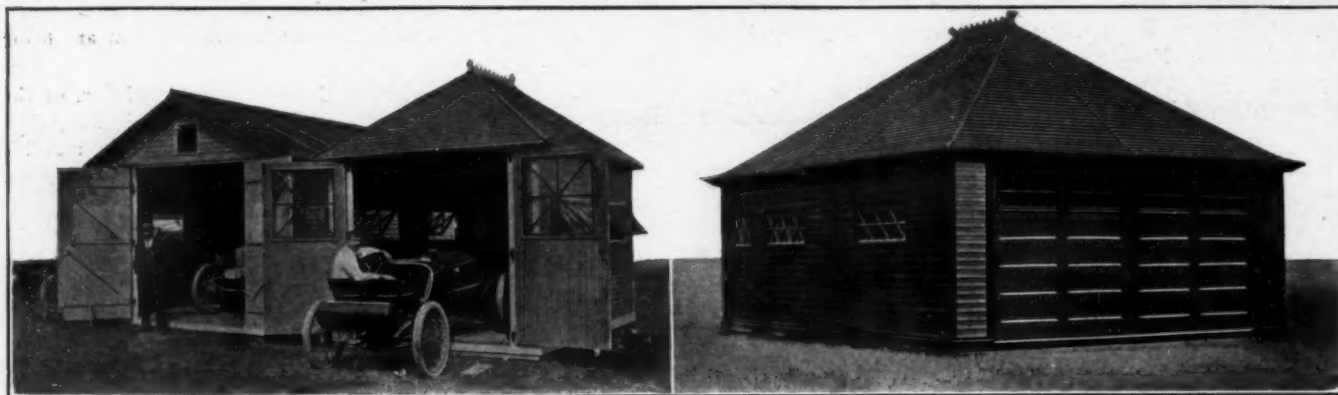
### CHANGES OF CAPITAL

**RACINE, WIS.**—Kelly-Racine Rubber Company; capital increased by addition of \$150,000.

**WARSAH, IND.**—Service Motor Car Company; capital decreased from \$500,000 to \$125,000.



Stegeman insurance patrol in service at Milwaukee, Wis.



Springfield portable garages. On the left are types for one car, while that on the right will house two machines

**Combine to Sell Marmon**—Arthur Foraker and Victor N. Cushman, Washington, D. C., have formed a partnership under the name of the Potomac Motor Car Company for handling the Marmon in that city and vicinity.

**Wisconsin Registrations Increasing**—On April 10 13,510 automobiles had been licensed in Wisconsin for the year 1912. It is estimated that this number will be doubled before July 1. Under the new Wisconsin law cars must be licensed annually and the fee is \$5 per car, as compared with a fee of \$2 and perennial licenses heretofore.

## News of the Garages

**New Garage for Barron**—Patrick & Coleman have established a garage and repair shop in the Klein building at Barron, Wis.

**Planning a \$12,000 Garage**—George R. Mann, Little Rock, Ark., is preparing plans for a garage for Moorehead Wright to cost \$12,000.

**Contract for Big Garage**—Moise de Leon has been awarded the contract to erect a four-story and basement garage for the Buick Motor Company, Atlanta, Ga. It will cost \$30,000.

**Steel Garage for Houston**—E. E. Evans, Houston, Tex., has purchased a 50-foot frontage on Ohio avenue and will erect a steel building, 50 by 120 feet, to be used as a garage and machine shop.

**Spokane Garage Opened**—Peter P. Swanson and T. K. Swanson have opened a garage on Monroe street, Spokane, Wash. They are the agents for the Sullivan truck, which is made in Rochester, N. Y.

**New Bellevue-Stratford Garage**—Plans are being prepared for a four-story garage for the Bellevue-Stratford Hotel, Philadelphia. The structure will be of brick and concrete and will measure 102 by 156 feet. It will cost over \$150,000.

**East End Garage Sold**—The White Company has sold to the East End Automobile Company, Pittsburgh, Pa., a brick building 80 by 120 feet in Beatty street for \$8,000 plus the ground rent and taxes. The White Company will occupy its new garage in former Luna Park in about a month.

**Medford Police Garage**—The city officials of Medford, Mass., have decided that as the city has gone into the motor vehicle equipment it is necessary to have a garage and proposals have been called for the building of one as an annex to the police station to house the patrol wagon.

**Partnership Is Dissolved**—Partnership existing between H. W. Shaver and George W. Hoch, Jr., Cannonsburg, Pa., known as the Globe Garage & Machine Company, has been dissolved. Mr. Shaver will conduct the machine shop, while Mr. Hoch will give his attention to the automobile business.

**Types of Portable Garages**—The Springfield Portable House Company, Springfield, Mass., makers of portable garages, have several representative types and sizes on the market which are constructed along the sectional principle. In their small types, the side- and end-wall sections are made in one piece, but in garages above 11 by 15 feet, the walls come in several sections. The idea is to get away from as many joints as possible. The joints are rendered water and wind proof by the lag-screw fastenings. The sections are reinforced by cypress frames and they are covered with building paper and cypress.

## New Automobile Agencies

### PLEASURE CARS

Place	Car	Agent
Annawan, Ill.	E-M-F	R. T. White
Baltimore, Md.	Havers	Charter Automobile Co.
Baltimore, Md.	Krit	Peebler & Ogden Motor Co.
Baltimore, Md.	Palmer-Singer	R. M. Upton
Bridgeport, Ill.	Cole	J. A. Woods
Brooklyn, N. Y.	King	Gayton B. Ellis
Columbus, O.	White	White Auto Sales Co.
Dubuque, Ia.	Franklin	Byrne Brothers Transfer & Carriage Co.
Flushing, N. Y.	Cole	Jockers & Stack
Grafton, W. Va.	Everitt	A. A. Holt
Indianapolis, Ind.	Stutz	Archie-Atkins Co.
Kingston, N. Y.	King	Oppenheimer Brothers
Knox, Ind.	Cole	R. D. Peters
La Crosse, Wis.	Cole	Fison & Phillips
Los Angeles, Cal.	King	U. S. Motor Car Co. of Cal.
Midland, Tex.	Cole	George Elliott
Milwaukee, Wis.	Waverley	A. H. Esbenschade
Mount Carmel, Ill.	Cole	B. H. Camp Auto Co.
New Westminster, B. C.	Stoddard-Dayton	McLean & Burr Garage Co.
Puyallup, Wash.	Brush	A. A. Rutledge
Sapulpa, Okla.	Cole	Sapulpa Motor Car Co.
Seattle, Wash.	Hupmobile	Sears Motor Car Agency
Spokane, Wash.	Bergdoll	T. H. & J. C. Strong
Spokane, Wash.	Mitchell	Consolidated Auto Co.
St. Louis, Mo.	Alco	Missouri Motor Car Co.
St. Louis, Mo.	Detroit	Brown Automobile Co.
St. Louis, Mo.	Empire	Johnson Automobile Co.
Syracuse, N. Y.	Paige-Detroit	James Auto Co.
Topeka, Kan.	Cole	J. G. Vogt
Toronto, Ont.	Cole	Fairweathers Ltd.
Wheeling, W. Va.	Franklin	I. J. O'Keefe
Wilkes, Pa.	Franklin	F. R. Brown
Wilkes-Barre, Pa.	Hupmobile	Dr. F. P. Archer
Wilkes-Barre, Pa.	Marion	D. & H. Auto Co.
Wilkes-Barre, Pa.	Matheson	D. & H. Auto Co.
Worcester, Mass.	King	W. A. Bancroft
Yazoo City, Miss.	Cole	The Garage

### COMMERCIAL VEHICLES

Place	Car	Agent
Boston, Mass.	Lippard-Stewart	Whitney-Barney Co.
Butler, Pa.	Adams	Butler County Auto Co.
Buffalo, N. Y.	Adams	L. G. Schoepfflin Co.
Cleveland, O.	Alco	Alco Motor Car Co.
Denver, Col.	Little Giant	Colburn Automobile Co.
Denver, Col.	Wichita Falls	McDuffee Motor Co.
Lynn, Mass.	Morgan	I. Wm. O'Donnell, Jr.
Philadelphia, Pa.	Sandusky	Automobile Repair & Sales Co.
Philadelphia, Pa.	Service	C. F. Knuth
Pittsburgh, Pa.	Lippard-Stewart	Taylor Motor Car Co.
San Antonio, Tex.	Adams	Commercial Auto & Repair Co.
South Bend, Ind.	Adams	Milton G. Smith Auto Co.
St. Louis, Mo.	Autocar	Capen Motor Car Co.
Syracuse, N. Y.	Federal	James Auto Co.
Waco, Tex.	Adams	Waco Auto Co.
Wilkes-Barre, Pa.	Gramm	D. & H. Auto Co.
Winnipeg, Man.	G. M. C.	Western Canada Motor Truck Co.



# Factory Miscellany

**COLE to Have Big Plant**—When the new factory of the Cole Motor Car Company, Indianapolis, Ind., is completed, together with the additions, the company will have ample floor space and a greatly increased capacity. The accompanying illustration shows the appearance of the plant when it is finished.

**Body Company Planning Factory**—The Fisher Body Company, Detroit, Mich., manufacturer of automobile bodies, is planning to erect a brick and steel factory at Oakland and Piquette avenues.

**Joliet to Have Plant**—Wolff Brothers, Racine, Wis., have established a plant in Joliet, Ill., for the manufacture of brass patterns and specialties. The firm consists of Fred, Elvin, Louis, Gustave and Max Wolff.

**Factory Building Contract Let**—The contract for a factory building on North Fourth street for the Columbus Auto Brass Company, Columbus, O., has been let to L. S. Steward, and work will be started immediately.

**Driggs-Seabury Making Trucks**—The Driggs-Seabury Ordnance Works, Sharon, Pa., are building twenty motor trucks preparatory to going into the motor truck business on an extensive scale. John Stevenson, Jr., Sharon, Pa., is president.

**Twyford Company Starts Operation**—The Twyford Automobile Manufacturing Company, Houston, Tex., incorporated with \$500,000 capital stock, has acquired a plant and is installing additional machinery to provide for building motor cars.

**Tire Factory for Newark, O.**—E. T. Rugg & Company, manufacturers of Newark, O., have organized a new company to manufacture automobile tires. The concern is to be known as the Newark Auto Tire Company. E. T. Rugg is the principal owner of the new company, of which he will have active charge.

**Davis Now in Alliance**—The Davis Manufacturing Company, which has been secured by the Alliance, O., Board of

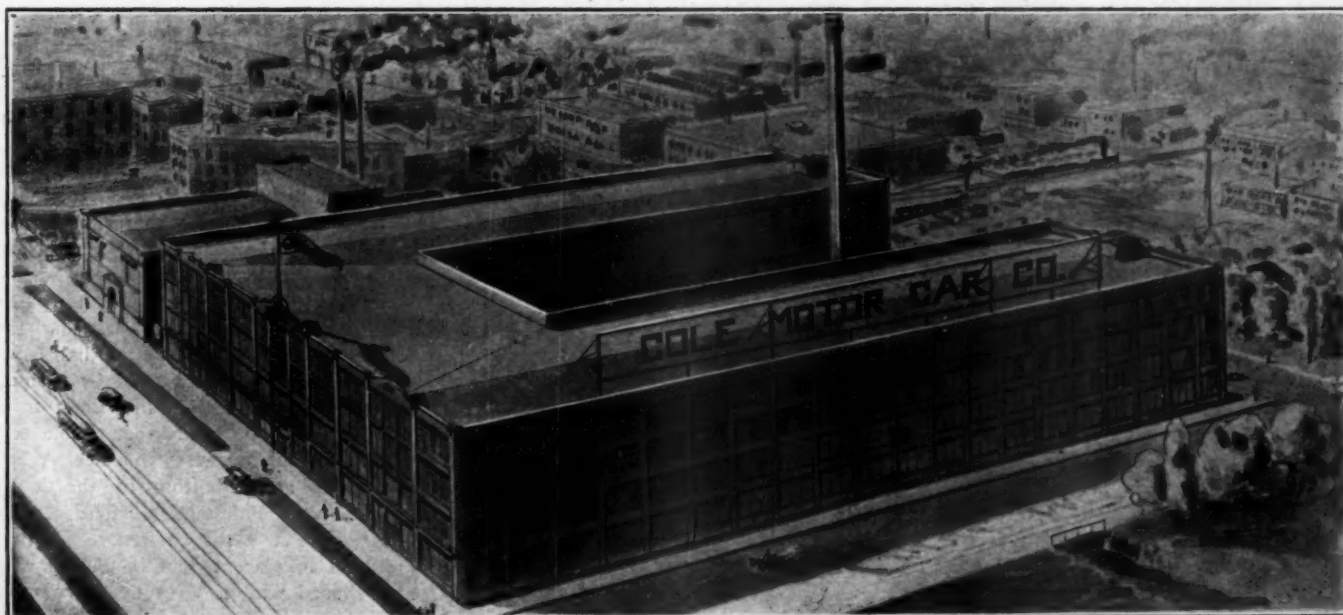
Trade, has completed arrangements with the Pennsylvania Company for switching accommodations. The output of the company consists of automobile radiators, steel springs and a new patented airless tire.

**Forms Truck Company**—J. G. Barnsdale, Superior, Wis., who recently announced his intention of manufacturing motor trucks and light commercial vehicles, has organized the Continental Truck Manufacturing Company with a capital stock of \$50,000. E. M. Anderson is associated with Mr. Barnsdale in the venture. Plans for manufacturing have not been completed.

**To Elect Johnson's Successor**—The annual meeting of the Johnson Service Company, Milwaukee, Wis., will be held April 29, at which time a successor to the late Professor Warren S. Johnson will be elected as president and general manager. The company is now confining its attention in the motor car field to commercial vehicles, having decided to discontinue pleasure car building.

**To Make Sheet-Metal Parts**—The Scheidel-Thompson Manufacturing Company will begin business about June 1 in the Industrial Building, Indianapolis, Ind., and will manufacture automobile guards, hoods, tanks, pans, tool boxes and other sheet-metal parts. Those interested in the company, which is capitalized at \$50,000, are George I. Scheillig, R. F. Scheidel, Bert E. Thompson and George H. Scott.

**The Westerner, a New Make**—The Westerner is the name adopted for the new roadster and truck to be turned out in Topeka, Kan., this spring at the old Smith automobile plant which is now being operated by Charles and George Southwick. Work on the new machines has not been started as yet, but all the specifications have been completed and the parts for the experimental cars ordered. A force of sixteen men are now busy at the plant assembling the Great Smith touring cars, a number of which will be ready to market by the time the roads are in condition for traveling.



Bird's-eye view of the new Cole factory at Indianapolis, now rapidly approaching completion

# Newest Ideas Among the Accessories

Indicating Tail Light; Compressometer; Steel Rope; Quick Detachable Terminals; Spring Tire; Headlight Damper; Block Tire; Demountable Wheels

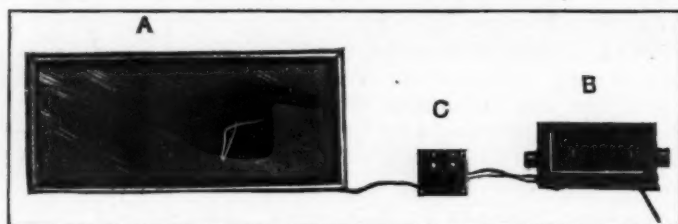


Fig. 1—Indicator tail light

## The Martin E. Z. Rear Signal

**A** REAR signal indicating the direction in which the car is about to turn is shown in Fig. 1. It consists of two boxes and a switch. The smaller box, containing two electric bulbs and two switch buttons controlling them, is fixed to the steering wheel, while the larger box contains two larger bulbs, each placed behind a translucent hand pointing to the right and left respectively. By pressing the right-hand button on the steering wheel the hand pointing to the right and the right-hand small bulb on the steering wheel light up, so that the driver of a car in the rear knows to which side the automobile equipped with the signal is going to turn, while the driver of the car has a check on the proper functioning of the system. This outfit is made by the Hudson Auto Lamps Works, 1646 Broadway, New York City.

## The Allen Compressometer Nut

In order to make the Allen tyrometer available for measuring the compression of an automobile motor, the Allen Auto Special Company, 1926 Broadway, New York City, has designed a two-thread nut which screws into the cylinder head in place of the spark-plug, and into which the tyrometer may be fitted. The nut is shown in Fig. 2, provided with a 7-8-inch A. L. A. M., and a 5-8-inch metric, thread. The iron nut is nickel-plated, and its interior is equipped with a rubber washer R to make an air-tight connection. In order to hold the tyrometer in position, a hook H is provided which is pivoted in the top portion of the nut, the manner of its engaging the tyrometer body being shown in Fig. 2.

The improvements in the Allen tyrometer design are also illustrated in Fig. 2. A clip C, similar to the sort used on foun-

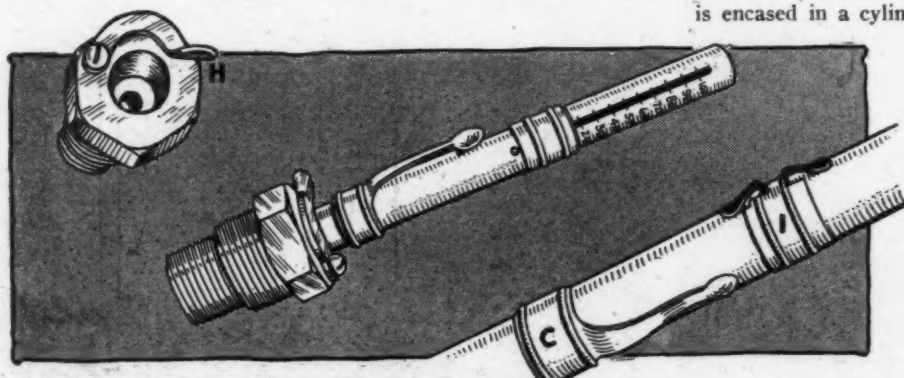


Fig. 2—Allen compressometer nut and clip springs for holding indicator to tyrometer and pocket

tain pens, is provided for holding the tyrometer to the pocket. Another refinement is seen on the indicator I. To prevent this indicator-sleeve from working loose on the body of the tyrometer, two clip springs are attached to it which press it against the meter and always hold it in the position it was lifted to by the pressure of the air coming out of the tire or the cylinder compression.

## Basline Autowline for Touring

A strong rope for towing touring cars in emergencies is made under the name of Basline Autowline by the Broderick & Bascom Rope Company, St. Louis, Mo. As manila rope which is strong enough for this purpose is necessarily very bulky, the Basline Autowline is made of steel wires, wound into a cable 5-16 inch thick. The Autowline, which, according to its maker,

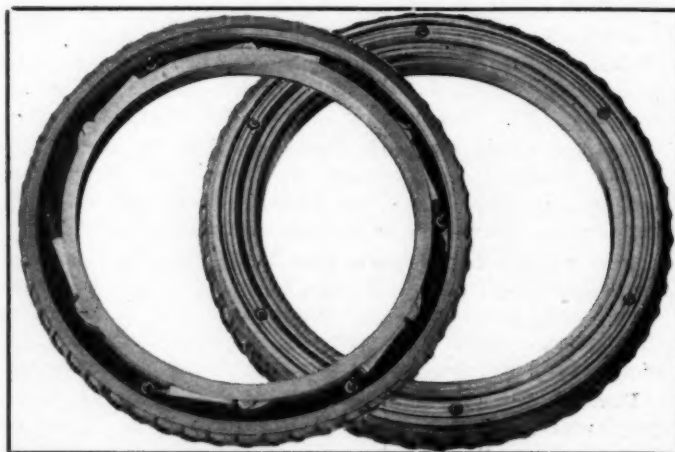


Fig. 3—Ferromatic automobile tire

is strong enough to pull a 4,000-pound touring car up a 20 per cent. grade, has manila rope slings and steel hooks at each end. It weighs 6 pounds. The manner of stowing is seen in Fig. 4.

## Connecticut Timer and Q. D. Terminals

The mechanism of the Connecticut timer, Fig. 5, made by the Connecticut Telephone & Electric Company, Meriden, Conn., is encased in a cylindrical dustproof housing. This timer is so made that it may be completely disassembled without the use of any tools. As Fig. 6 shows, the shaft carrying the contact wheel is carried by two ball bearings, which may be adjusted by turning knurled screws whether the timer is in operation or not. Quick-detachable terminals T hold the wires in place. A ball and spring at the bottom of the device provide a ground contact. The contact blocks have a V-shaped groove G; they are held in place by an insulating ring also shaped with a V groove forming a track for the contact wheel, which is ground to an exact fit.



The quick detachable terminal is illustrated in Fig. 5. To make the connection, the wire is pushed on the rubber sleeve A, and a stud C carrying the spring S is slipped into a hole in the sleeve, being fastened with a screw B which makes contact with the wire in the sleeve; this spreads the insulation slightly so that it binds inside the rubber sleeve. It is made in two types, as a primary and a secondary connector. The secondary connector is made in three sizes to fit 3-8-inch, 1-2-inch and 5-16-inch wire, and is fitted with a sleeve covering the end of the wire, so that it may be handled without fear of a shock. The terminals are equipped with ball-and-socket joints, to permit of swinging the wire without breaking it. The adapter which is furnished with both the primary and secondary terminals is shown at D. The hexagonal ball nuts E are made to screw on spark-plug binding posts or timer connections in place of those shown at D. They are made in several sizes of thread.

### Ferromatic Automobile Tire

The Ferromatic tire, Fig. 3, consists of a metal shell made in two separate rings. The outer shell is covered with a solid rubber tread of ample thickness; between the outer and the inner shell from five to eight diagonal vanadium steel springs are disposed, which hold the two shells in concentric relation. These springs are claimed to absorb and distribute the shocks caused by road inequalities, thereby doing the work of the air ordinarily used in inner tubes.

Ferromatic tires are made to fit any standard size of wheel and may be fitted to clincher, Q. D. or demountable rims, without altering the wheel in any way. These tires are made, with plain and non-skid tread, by the Ferromatic Tire & Manufacturing Company, Cleveland, Ohio.

### The Tobias Glare Eliminator

Complying with the law prohibiting glaring headlights in many cities and with the country-wide agitation backing up this trend, the automobilist may use to advantage the Glare Eliminator shown in Fig. 7. This novelty consists of an open wire ring which may be compressed to be fitted inside the body of the headlights, where it expands, fitting tightly against the front glass. A fabric which dims the glare of the rays emanating from the bulb or burner is sewed to the wire so as to form a circular screen. The glare eliminator comes in every size of diameter between 6 1-2 and 12 inches, the sizes varying 1-2 inch. The standard product is made of white lawn, but any size may be procured to order in white or pink silk.

The use of the glare eliminators does not detract from the useful effect of the headlights but merely robs them of the glare which blinds anyone looking into 8 or 12 candlepower lights focused in parabolic reflectors. With the eliminators the driver can clearly see more than 100 feet of the road ahead. F. H. Tobias, 1931 Broadway, New York City, makes this device.

### Diagonal Block Truck Tire

The Diagonal Block Tire Company, of Urbana, O., is in the market with a heavy-duty truck tire. The rubber blocks or sections are so cut that they may be fitted individually to the rim by two U-shaped head bolts running downward through the felloe and a bolt crosswise through a downward flange. Each block has a down-turned flange with an upturned hook, which projects in the opposite direction. The bottom part of the section or block is filled with hard rubber cured permanently in place, and the downward flange fitting over the felloe prevents the section from slipping sidewise. With all sections secured to the wheel by their proper bolts, the assembly forms a tire in which the strain is eliminated from each individual block and transferred to the body of the wheel. The diagonal arrangement



Fig. 4—Baseline Autowire

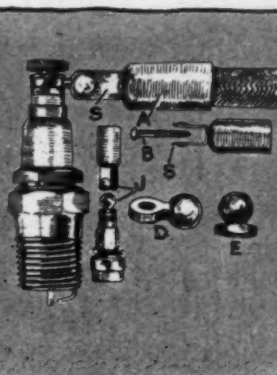


Fig. 5—Connecticut terminals

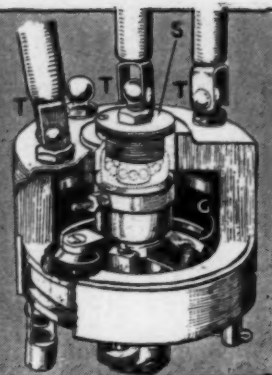


Fig. 6—Connecticut timer

of the blocks results in a smooth running of the wheel, and, while it permits of the necessary rubber displacement in the blocks, it also creates an anti-skidding effect.

### E. C. Demountable Wheel

A demountable wheel, taper-fitted to the hub and held in position through a locking ring, is manufactured by Ellsworth & Cross, of 332 South La Salle street, Chicago, Ill. The wheel has an inner and outer flange holding the hub ends of the spokes in place. Both of these flanges are of greater diameter than the hub cap. The inner flange has a tapered extension on which the outer flange seats and which also fits the tapered hub. Two lugs attached to the back of the inner flange guide it in sliding on the hub and key it in place, preventing rotation of the wheel independently of the hub. To hold the wheel and hub in tight engagement, a locking ring screws on the hub, being put in place or removed by three turns one way or the other. The locking ring is prevented from coming off by its being toothed at part of its periphery, so that it forms a ratchet which is engaged by two dogs or pawls as the third turn of the locking ring is completed.

### The Solderall Blow-Torch

The H. W. Johns-Manville Company, of New York, makes a small blow torch to be used in connection with Solderall jobs. This blow-torch is 6 inches high, 2 inches wide and 1 1-2 inches thick. It is filled with alcohol which rises through a wick and burns in a pointed flame about 4 inches in length. No pumping is necessary.

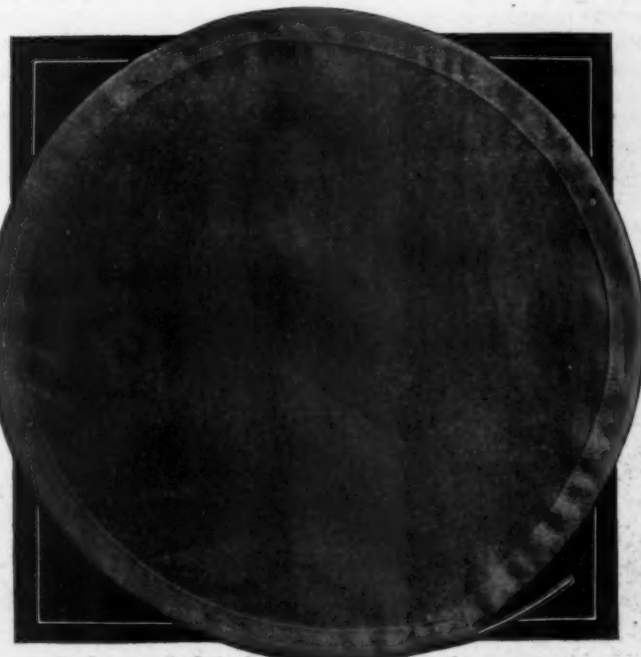


Fig. 7—Tobias white lawn glare eliminator

# **P**atents Gone to Issue

**A**UTOMOBILE Headlight—In which the lamp is mounted in a socket slidably arranged in the neck of the headlight casing.

This patent relates to a lamp, Fig. 2, which is composed of two casings fitting into one another. The outer casing is open at one end and has a reduced neck at its opposite end; the inner casing has an exterior shoulder which fits against the edge of the open end of the outer casing. The inner casing is closed at its larger end and has an intermediate portion forming a reflector; at the smaller end it is shaped into a neck fitting into the neck of the outer casing.

No. 1,022,589—to Edgar J. Lutwyche, Chicago, Ill. Granted April 9, 1912; filed April 10, 1911.

**Tire Guard**—Being a device for scraping foreign matter off the tread.

The device described in this patent is a tire guard, Fig. 3, consisting of an arm attached to the journal support of a wheel, a guard attached to the arm adjacent to the periphery of the wheel and a scraper carried by the outer end of the arm.

No. 1,022,658—to Charles Dabelstein, Detroit, Mich. Granted April 9, 1912; filed October 14, 1911.

**Spring Wheel**—On which the rim is formed of a series of individual sections.

This patent, Fig. 4, refers to a combination of a hub with a rim formed of a circumferential series of overlapping, relatively movable sections with springs interposed between the rim and hub and bearing against the rim sections. A continuous tire is laid around the rim, and lugs are located on the rim sections mentioned, overlapping the sides of adjacent sections.

No. 1,022,754—to Augustus F. Priest, Chicago, Ill. Granted April 9, 1912; filed May 18, 1910.

**Light Turner**—Device for directing the rays of the headlights into the path of the front wheels.

The lamp-turning device described in this patent, Fig. 1, consists of movable lamp supports connected to the steering wheel supports. A rock arm is detachably secured to one of the steering wheel supports. To the lamp brackets cranks are adjustably secured and located above the frame and an extensible

arm connects the cranks. This extensible arm comprises overlapping sections connected by an eye bolt. There is a rod, one end of which is arranged in the eye bolt, while its other end is in a pin-and-slot connection with the rock arm.

No. 1,023,026—to Ward G. Moxley, Ravena, N. Y. Granted April 9, 1912; filed August 26, 1911.

**Nut-Lock**—A steel wire passes through openings in the nut, engaging recesses in the bolt.

The nut-lock described in this patent comprises a nut with a female thread and passages leading from one side and the outer face through the female thread. The opposite ends of a steel wire pass through the passages in the nut and are seated at different localities formed for this purpose in the thread of the bolt on which the nut is used.

No. 1,022,542—to William Fry, Edinburg, Va. Granted April 9, 1912; filed December 19, 1911.

**Automobile Horn**—Utilizing the idea of the phonograph.

This signaling device for automobiles comprises principally a sound-producing mechanism which includes a record, a speaker carrier and speaker in engagement therewith. A hand lever located near the driver's seat is operatively connected with the sound-producing device so that, when the lever is initially moved forward a signal will be given by the sound-producing device. When the forward movement is continued the speaker is returned to its normal position, ready to duplicate the signal on the next forward movement of the lever.

No. 1,023,015—to Charles Raymond Heizmann, Reading, Pa. Granted April 9, 1912; filed August 25, 1910.

**Explosive Engine**—Being of the double-acting type.

This patent refers to a motor having cylinders each of which is closed at both ends and has inlet and exhaust ports at each end. A wall on each cylinder is detachably secured at its margin to a mating wall on the next cylinder forming in this way a base and a crankchamber. A piston is contained in each cylinder, a wristpin extending from each piston through a longitudinal slot in the cylinder and sliding in a guideway on the wall.

No. 1,022,476—to Frank J. Gremel, Detroit, Mich. Granted April 9, 1912; filed March 14, 1910.

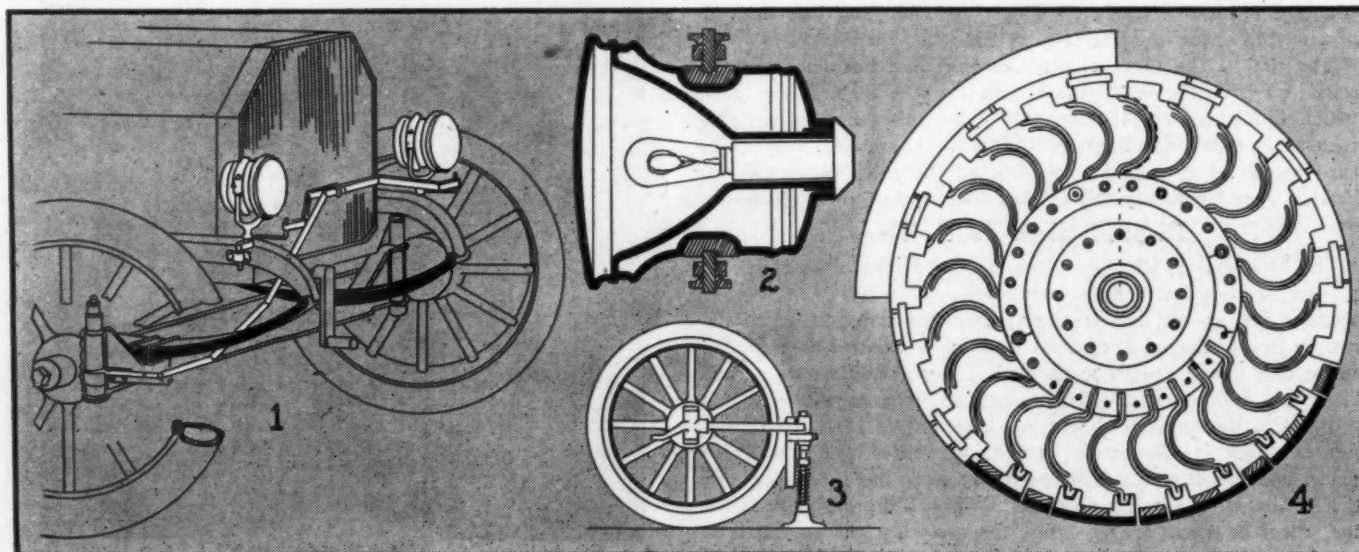


Fig. 1—Moxley light turner. Fig. 2—Lutwyche headlight. Fig. 3—Dabelstein tire guard. Fig. 4—Priest spring wheel